This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

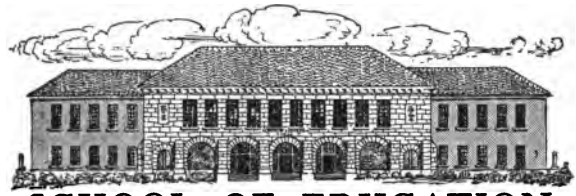
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

TX 914.2 .T192m 1
McMurry, Charles Alexander,
Teacher's manual of geography : to accom
Stanford University Libraries
3 6105 04934 8035

HER'S MANUAL OF GEOGRAPHY

CHARLES McMURRY

Tx.
914.2
T192m
Cop.1



SCHOOL OF EDUCATION
LIBRARY

TEXTBOOK
COLLECTION

STANFORD UNIVERSITY
LIBRARIES

A TEACHER'S MANUAL

OF

GEOGRAPHY

The MMCo.

A TEACHER'S MANUAL

OF

GEOGRAPHY

TO ACCOMPANY

TARR AND McMURRY'S SERIES OF GEOGRAPHIES

BY

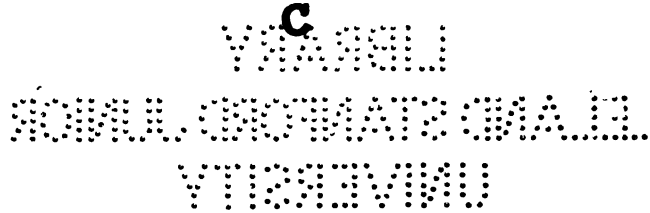
CHARLES McMURRY, PH.D.

New York
THE MACMILLAN COMPANY
LONDON: MACMILLAN & CO., LTD.
1902

All rights reserved

COPYRIGHT, 1902,
BY THE MACMILLAN COMPANY.

Set up and electrotyped July, 1902. Reprinted September, 1902.



Norwood Press
J. S. Cushing & Co. — Berwick & Smith
Norwood Mass. U.S.A.

HOME GEOGRAPHY

AND

THE EARTH AS A WHOLE

HOME GEOGRAPHY

For beginners home geography stands in sharp contrast to the geography of the world whole and of foreign countries. It is relatively so small. But a knowledge of local geography and industries furnishes a good starting-point in geographical study. It is difficult for adults to understand how much children are dependent upon things which they have seen in order to explain things which they cannot see. The observation of neighborhood facts must precede the study of things at a distance. A definite knowledge of the home surroundings, of its hills, streams, landscapes, agriculture, manufacturing, commerce, changing seasons, storms, floods, etc., is necessary as an introduction to the same topics in the world abroad.

When we come to study the climate, surface, industries, products, and commerce of distant states and of foreign countries, our ability to construct correct pictures is based upon the varied ideas of similar kind that we have gathered in vivid and real form from our own home neighborhood. The imagination must be our chief helper in constructing geographical pictures of things at a distance from home,

G G 1 1 4

but the imagination cannot construct pictures out of nothing, any more than a builder can construct a house without materials. The imagination works and builds with the materials which experience has already gathered. It is not expected that we shall gather all the experimental facts on these third or fourth grade excursions, but we can encourage the children to keep their eyes open and their minds alert for this kind of knowledge. We can at least open the door to these varied and interesting forms of activity.

Children are already familiar with these home things in a vague, loose way, but we are inclined to overestimate the extent and accuracy of their knowledge. In some special cases they know enough about certain local topics without help from the school; but, generally speaking, children have little accurate knowledge of local industries and phenomena. Even the teachers are found in many cases to be extremely deficient in definite knowledge about such common topics as local directions and topography; weather changes; the dairy, the cultivation of garden vegetables and fruits; the work of the farm in caring for crops and farm animals; the tools, machines, and processes of the blacksmith, the tinner, the carpenter, and others; the work done in planing-mills, wagon factories, grain elevators, mills, etc.; the shipment of fruits, meats, glassware, and iron products by rail and by water, etc.

Many of these things which we assume that teachers and children know by their own daily observation are either not known at all or are not well understood. If they are to be clearly grasped and made the basis of a real understanding of similar topics on a larger scale, it can only be done by turning the children's thoughts definitely

upon these supposedly familiar topics. They may be handled in such a way as to furnish interesting instruction and to require genuine effort on the pupil's part, both to get clear notions and to express them in language and drawing. There is much variety of surprising knowledge to be gained by stepping from the schoolroom into the real world in order to see the different kinds of workmen in their employments, and to get a view of the country from the hilltops. This is especially fitting for children, because of their delight in these concrete realities. The ignorance among so-called intelligent people of many important things about home is matter for surprise. It is to a large extent the cause of that lack of sympathy and appreciation among the well-to-do classes for many other people who are close about them. It is an extremely faulty training that allows us to pass by many of these matters of human interest without desire or effort to understand them.

It is a marked and justifiable tendency of our modern education to incorporate into the course of study a knowledge of the simple universal trades and occupations upon which our whole state of culture rests. The manual training and constructive work in primary and intermediate grades deals with some of these simple occupations. It is an extremely practical and fundamental demand that children should be made acquainted with these local affairs. They will everywhere need them as a means of interpreting social and physical environment in all studies and throughout life.

Of course it must be taken for granted that a large part of this knowledge is picked up by a child incidentally by all sorts of daily experiences. But to carry out this pur-

pose more fully with beginning classes in geography, it is necessary to conduct a few excursions to a number of these places of special interest, in particular to those which are near and convenient to the schoolhouse. In some cases an excursion is made in preparation for one of the topics discussed in home geography, such as that on soil or hills. Localities differ greatly in respect to the possible excursions which they furnish, but almost any place will afford more opportunities for instructive excursions than the school will be able to carry out. In the springtime an hour's visit to a neighboring garden in which the seeds of spring vegetables are being planted in the fresh-turned earth will be instructive. Observe the manner in which the soil is prepared for planting, how hotbeds are arranged for cabbage or tomato plants, and later how the young plants are transferred to the garden. Notice the ploughing, the various kinds of vegetables planted, and the different kinds of seeds and ways of planting them. It is well to trace the growth and cultivation of one or more of the common vegetables through the season, as cabbages, potatoes, and among small fruits, blackberries and strawberries. The interest thus awakened in the children will cause them to watch their own gardens more closely, and perhaps the neighboring gardens, and report in class the facts observed. Where the school grounds are large enough, a small space is sometimes spaded up and used as a school garden. A single excursion to a garden for three quarters of an hour furnishes valuable material for discussion in one or more lessons. The next day's lesson in geography should require a full statement of the things observed on the previous day's excursion. Some-

times drawings of the vegetables or plants furnish good exercises. It is a matter of interest for the children to make a list of all the garden vegetables raised in the neighborhood, such as cabbages, onions, beets, cauliflower, egg-plant, carrots, etc. The small fruits may be studied and listed in the same way.

At another time an excursion may be made to some frame house in process of construction; the various materials, as brick, stone, sand, lime, and lumber are noticed, and also the work and tools of the workmen. Where do the builders get these materials (lumber-yard, planing-mill, sand-pit, brick-yard, quarry, hardware store, etc.)? As the frame goes up notice the joists and studding, the sheeting and siding, the rafters and shingles, the matched flooring, the windows and door-frames, and other distinctive parts of the construction. Drawing lessons on the plan of the foundation, frame-work, and elevations may be assigned. The thoughtful working over of this excursion in the class clears up the ideas and gives a mastery of the simpler forms of construction. A second excursion, when the building is under roof and the interior finish is being placed, will show the different kinds of mill-work and finishing lumber used (hardwood floors, casings, mantels, cupboards, gas-fixtures, ornamental carving, or frescoes).

In a lesson like this children may see how different classes of workmen assist each other and depend upon one another, — as carpenters, masons, plasterers, plumbers, painters, tinners, etc. Indeed, it is well to make a list of all the different kinds of men and labor necessary to the building of a common house. When we add to this the stores and shops and lumber-yards which furnish

the material, we see how many people are engaged directly or indirectly in house-building.

It seems advisable also, in some cases, to reach out beyond the home neighborhood and to explain where the pine lumber comes from, where the brick is made, or the stone obtained from a quarry. In this connection it is necessary to establish the cardinal points of the compass and to use some kind of a map to show the location of the surrounding districts or states. It will be better for the teacher in such a case to sketch the map upon the board, as children have but little power at first to explain maps.

The teacher needs to exercise good control of children upon an excursion, and to direct their attention to the chief points of observation. The children will be found to be very careless and inaccurate in their observations and descriptions. Even with this objective material before them they need to be taught how to observe and to describe correctly. An excursion needs to be as well planned as any lesson. The teacher should have visited the place beforehand and have laid out the scheme of observation. Most teachers find such excursions trying upon the nerves on account of the playful dispositions of the children and their tendency to scatter and to romp. It is necessary, therefore, for the teacher to form a careful plan and act with prompt decision in cases of disorder. To compensate for this greater freedom in the open air the teacher will find a means of closer sympathy with children and a better insight into their individualities.

The broadening of the teacher's knowledge of practical affairs is also a thing worth mentioning. Such excursions

to the woods, streams, hilltops, gardens, quarries, parks, stores, factories, public buildings, wharves, shops, freight houses, and mills will bring the teacher into contact with the great world of realities outside of schools and books in a most interesting and instructive manner. It will qualify the teacher in many practical ways to be a real instructor. In most cases the teacher will find that he will be treated with kindness and full consideration by those who have charge of the places visited.

Even if only a few such excursions can be made in a year, they are valuable in suggesting to the children the advantages of such observations. Moreover the experience of children at other times in their walks and journeys can be drawn on to enrich home geography even when no excursions are taken. In fact, one of the best results on the part of the children is a readiness to observe and report things seen in the surrounding neighborhood. What the children have picked up in their various home and neighborhood experience, if properly used, will greatly aid the work of recitations.

In discussing an excursion after returning to the school, the teacher can do a great deal to clear up the ideas gained by observation. At this point the teacher needs to develop real skill. Children upon an excursion see things in a fragmentary and unconnected way, and their real insight into the meaning of things seen rests upon the teacher's skill in showing the connection of the parts. In a factory or planing-mill, for example, the power that drives the machines is not observed by the children and they do not understand how a steam-engine in a separate room can drive machines at a distance. For the sake of safety and for other reasons parts of the machinery are concealed so

that a crude drawing may be necessary to show in brief how the whole machine operates, as in case of the band saw or the lifting of grain in a grain elevator, or the work of a turbine wheel in a mill. If the teacher draw the objects, machines, and processes in connection with these observations, he has an excellent means of giving vividness to the children's observations. The children also should be encouraged to this graphic expression of their thought. In visiting fields, forests, shops, and factories many objects will be more clearly formed in the mind if this practice of sketching and blackboard explanation is frequently resorted to,—not æsthetic drawing, but mere sketching, diagramming, and picturing of objects in a crude way. The regular drawing lessons of the school can do nothing better, at this stage, than to prepare children for greater skill in this kind of drawing. It may be well also in the drawing lessons to take some of these objects for more accurate reproduction.

It is evident that the teacher needs to acquire much facility in making sketches, diagrams, and pictures. Next to direct observation itself this is the concretest mode of teaching. It will also find quick and natural imitation among the children, and is a mode of expression to which they are accustomed from the start. The time spent upon such drawings need not be great, but it puts the children to severe tests in fixing the form of objects, and in expressing sharply their ideas. Oftentimes this is a far quicker mode of explaining objects and processes than verbal statements. A free use of the blackboard by teacher and pupils is invaluable.

In what order these excursions take place is not a matter of great importance. This will depend upon the sea-

son and upon the local surroundings, and upon the series of topics worked out in the regular text-book. May and June, September and October, are good months for visiting gardens and farms, and for outdoor excursions to observe the creeks, slopes, hills and valleys, soils, and other physical features. Excursions to shops and factories can be made at almost any time of the year when the weather is good. Oftentimes an excursion can be made from the school to some store or shop only a few blocks away, and the children returned to the school at the end of thirty or forty minutes. Sometimes it is better to take the last hour of the day's programme for the excursion, and send the children home at its close. The author has occasionally taken a class of twenty or thirty children two or three miles on the street-car to visit a park or a court-house or a factory.

It should always be kept in mind that there are dangers connected with visiting factories and workshops. Great precaution is necessary. A single accident would outbalance a great amount of good. The teacher should be very watchful and decisive in preventing such accidents. In mills and shops, where machinery is used, it is better not to take more than twelve or fifteen children, and to look out closely for their safety. It is better to warn the children beforehand, and be very watchful while with them. Even in excursions, where no danger is present, the teacher should be very careful not to overexcite or overstrain the children. In climbing stairs to get to a high point, in visiting strange places, especially where there is the noise and rattle of machinery, some children become timid and nervous, and should be treated with kindest consideration.

When the parents are interested and visit the school, it might be well to invite one or more of them to go with the teachers and children upon some of these excursions. It is very desirable that parents should learn to do this for themselves, and to form the habit of visiting places of interest with their children. Parents could be of much aid to the teacher upon excursions, in caring for the children, in explaining difficulties, and in getting them safely home again. It will awaken the interest of parents to see what use is made of these excursions in the later instruction. By inviting parents to join in this, it may be possible to awaken a greater appreciation for this kind of school work and thus bring it more easily into vogue.

Parents generally do not see the value of excursions. They are disposed to think that children are better employed at their books. They do not understand that the real insight of children depends upon the number of things in the world about them which they have seen and understood. A meeting of parents to discuss the value of excursions would be helpful. The principal reasons for such trips could be presented, and illustrations given showing their educational significance.

The problem of interpreting maps and of map-making is one of the chief difficulties in the first year of geographical study. The excursions with children to high points of observation, either hilltops or high buildings, furnish the indispensable material for a map of the neighborhood. The previous experiences of the children in walks about the home are equally valuable as preparation. In some cases the school campus and the tower of the schoolhouse (as described in the excursion to this lookout) give the best starting for school work in map-making. While

upon the excursion the children point out and locate objects according to north, south, east, and west. Upon returning to the schoolroom the teacher, after collecting the children about him and laying a large piece of paper upon the floor, can reproduce in a map, of which the school campus forms the centre, the relative position of the different objects in the neighborhood. The four directions correspond exactly to those given in the excursion. In the first drawing it is not necessary to make this map upon a definite scale. If the teacher hangs this map upon the wall, he can easily show the children how to interpret the directions correctly, no matter on which side of the room it is hung. Some practice in repetition, however, will be necessary to overcome this difficulty. Such a map is usually made upon a flat surface, and does not help children to image irregularities, such as hills and valleys. To bring out this idea of relief it is well to make a sand map of the campus, or of some limited district which can be overlooked by the children. After making an excursion along the creek and slopes, or to a hilltop, with special reference to differences in elevation, valley slopes, and drainage, the sand map can be made. These variations can be better seen in walking about the country than from some high point of view. It is well, however, to trace the course of a river valley in both directions, with its smaller tributary creeks and their smaller valleys, thus getting the general slope of the country with its local variations. Of course such ideas will not come to full clearness from a single map, nor from two or three lessons. In connection with the various excursions, these ideas of distance and elevation will be repeated and cleared up. It is generally possible to survey a district of country ten

or fifteen miles in diameter from some high point of view. On the basis of such observations it is well to make a map upon a scale of perhaps an inch to a mile. It includes the railroads, three or four principal wagon-roads, and perhaps two or three neighboring villages, and the more extended course of creek or river. Such maps should be made carefully by each child. In connection with this may be shown a map of the township and of the county with which the children are more or less familiar.

The greatest difficulty is found in introducing children to definite ideas of distance and topography for whole states and larger areas. In discussing products, such as lumber, groceries, fruits, coal, brick, building stone, etc., and in pointing out the sources from which they are brought to us, it is advantageous to use a larger map of the state and of neighboring states to locate definitely these regions. In order to give as much clearness and definiteness as possible to the ideas of distance, area, etc., it is necessary to fall back upon the previous experiences and travels of the children. They are familiar with railroad travel for short distances. The time required to travel over these distances, by wagon or in buggies and also upon the cars, may help the children to form more definite ideas. The time required by them in going to the neighboring villages and towns should be used frequently as a basis of comparisons. Also the journeys by rail to larger cities, at a greater distance. The time taken formerly by stage-coaches and by the earlier settlers in travelling, and the difficulty and hardships of such journeys, will also help the children to form clearer notions. It is not likely that any teacher will overdo this effort to concrete these geographical notions of distance and space.

It must not be expected that children in school will be able to get as clear and accurate notions of surface, distance, and the various forms of land and water as the adult who has travelled much and seen many varieties of country. All of these geographical concepts grow gradually with experience.

In dealing with larger areas of country, maps which give a bird's-eye view of extensive regions, such as some of the railroad maps and guides, are quite helpful. They form a good transition from the flat map to the relief map. They need to be studied and discussed in the class, as do all maps, so as to correct false notions and give greater clearness. The relief maps found in the geographies and large wall relief maps are helpful in giving general, approximately correct notions, but they need to be discussed and explained to avoid serious error. Good pictures of broad landscapes of valleys and of mountains greatly assist the children in forming definite ideas. The pictures of maps given on pages 106 and 107 of the Home Geography illustrate the connection between pictures and maps, and many of the pictures through the First Book of the geography can be used to great advantage when it is necessary, in different topics, to illustrate the varieties of surface. The constant appeal by the teacher to familiar standards of measurement, as the foot, yard, and mile, or the block, section, and township, and to heights as measured upon steeples, buildings, chimneys, watch-towers, and hills, will enable the teacher to correct many false notions, and at the same time give a degree of concreteness and reality to the instruction.

The home geography, as indicated above, should often reach out into the neighboring parts of our own state, and

into other states, and even into the distant parts of North America, showing from what sources fruits, coal, lumber, iron, sugar, salt, and many other products come. This is a natural and excellent means of gradually extending their geographical experience beyond home. The grocery or fruit store, the hardware and tin shop, the lumber-yard, the shoe or wagon factory, point to other parts of the country, from which they derive their material. The map of the United States, and even of the whole world, will be needed, at various times, in tracing out the sources of common necessities and staple products used in our own neighborhood. As pointed out before, in all these efforts to interpret maps, sufficient time must be taken to get at the primary conceptions of map-making. We must use the crudest forms of illustration, such as the making of maps on the floor, quick blackboard sketches, etc., so that the objects and relations are clearly manifest to the children. This time is well spent in forming a sure basis for all future globe and map studies.

The observation of seasonal changes, the varying length of day and night, of the position and apparent movement of the sun, moon, and stars, may be carried on in any locality, and is a good preparation for later topics in physical and mathematical geography. The climatic changes connected with the successive seasons, the winds and storms, frost and ice, and their effect upon vegetation and animal life, are of great value in studying climatic conditions and their effects in other parts of the world. We sometimes forget that these grand object lessons, some of them the most beautiful and imposing, belong directly to the child's home and are part of his own experience. They all involve problems too difficult for a child to un-

derstand, but the simpler and more manifest phases of these phenomena should be carefully studied as an A B C to the larger geographical world which he must learn to grasp and interpret. Even within the first year's study these topics, bearing upon the world as a whole, will demand a brief treatment, and it will be necessary for the teacher to make use of all the child's experience about home to give him even a meagre and approximate view of the world as a whole, of the continents and oceans, etc.

Another topic which involves more or less difficulty throughout the school course, on account of its abstract nature, is government. This is a subject that is capable of concrete illustration in the home neighborhood. The local government of the city, the town council and officials, with their duties and mode of election, the police, the jail and treatment of offenders against law, local taxes and the uses to which they are put for streets, water supply, schools, etc., the popular modes of lawmaking, — all these phases of self-government can be observed and understood by the children in nearly every community. They may know some of the people who serve as local magistrates and the duties they perform, or by a little discussion in the school they can be made well acquainted with these facts. Even the relations of the national government to the smaller place can be definitely studied in connection with the post-office and postmaster, with bank examiners and the national banks, and oftentimes in connection with representatives and judges who are under the federal rather than the state authority.

A few lessons upon the mode of assessing and collecting taxes, and on the various uses of the money for paving the streets, building bridges, providing for the fire and police

departments, building schoolhouses, etc., are both interesting and instructive to children. One reason for this is the fact that all these things are familiar to their own eyes, and acquire in this way a fresh and more definite meaning.

When we come to compare later the departments of the state government and of the national government with that which is local in our own neighborhood, we shall find on a larger scale exactly the same things as in local government, the executive, the legislative, and the judicial. It would seem to be possible in this way to remove some of that haziness and indefinable abstractness which mark the ideas of most grammar school boys and girls on government. In this connection a visit to the court-house and to the rooms where cases are tried or where the documents, such as deeds for all the property in the county, are recorded and preserved, and where the various officers, of the county have their rooms and transact business, is very profitable. Several lessons in the schoolroom may be given to the elaboration of the things observed on such a visit.

The three important topics, included under building materials, clothing, and food products, embrace a large number of lessons upon the various common necessities and occupations of men. They are of special value in the later study of geography because they deal with those trades and occupations which are common in every civilized and semicivilized country of the world. The carpenter, the mason, the shoemaker, the tailor, the farmer, the miller, the blacksmith, the baker, the shepherd, the grocer, the weaver, are found in every locality, almost in every part of the civilized world. A study of these local

trades and occupations in our own community helps to make a child, in this way, a citizen of the world, and puts him into sympathetic relations with the simple, primitive industries of men everywhere.

We will cite a few examples. In connection with building materials he may study, not only a house in process of building (as shown above), but the lumber-yard, the brick-yard, and stone quarry, the carpenter shop, the sawmill, and the planing-mill, besides other common sources from which the material is drawn. If it is possible for the children to make an excursion to the carpet weavers, they will see, in its simplest, crudest, and most easily understood form, that process of weaving which is common to all the great textile industries in all lands. Where opportunity offers, it is of great interest to children to visit a pottery and observe the potter's wheel, and the skill of the potter in shaping vases from the crude clay. It is to be hoped that the manual training department will soon supply this deficiency in many schools.

A large city requires a different treatment of local geography from that of a village or country place. A city like New York or Chicago is so complex and vast in area that it takes much time, study, and discussion to understand even the simple phases of its life and occupations. On account of the numerous kinds of business, trade, and sight-seeing in a big city, it is necessary to pick out those topics that can be treated from a simple point of view. Bulky products like lumber, grain, iron, and fruits can be studied to much better advantages than difficult, refined, and complex processes like the weaving and dyeing of textile fabrics, the manufacture of fine pottery and silverware, watchmaking, and the construction of complex

machinery, engines, microscopes, etc. Children cannot visit great manufacturing establishments to good advantage, especially those which present an intricate series of processes, executed by machinery. Children can understand a sawmill, a blast furnace, a brick kiln, a foundry where simple castings are made, or even a rolling-mill; but in most cases it is better to visit a small blacksmith shop, a carpenter's shop, a schooner unloading, a carpet weaver's, a park, the seashore, a grocery or fruit store, a small job printing establishment, a baker's, a grain elevator, a truck garden, a bridge, a canal boat, an ocean steamer, a fish market, a monument, a freight house, a shoemaker's, a basket-maker's, a cooper shop, a lumber-yard, a shipping dock, in short, some easily grasped whole. If a map of the city is studied, it should be simple, giving only a few streets and leading sections, and locating a few striking points.

Even if we limit ourselves to the simpler, more prominent and important topics, it will require much more time to compass the home geography of a city than of a country place. A whole year in third or fourth grade may be profitably spent upon the home geography of a large city, especially if we follow up the connections with the adjacent regions. To some extent this should be done, and the sources of large staple products, like lumber, iron, fruits, cotton, dairy products, vegetables, grains, etc., should be traced out on a larger map of the United States.

Nearly every town or city has some special local industries worthy of study, such as wagon-works, or a cooper shop, or shoe factory, or glass-works, or foundry, or basket factory, which are deserving of careful study upon ex-

cursions. In our day, when we talk so much of the social function of the school, it is well to note the social value of such studies. In them it is easy for children to see the complete dependence of different occupations and trades upon one another, and how necessary it is for people to work together in harmony. They will also learn something of the hours of labor and wages of laboring men, and of the value of expert skill in workmen. The significance of machines, of mechanical inventions for accomplishing the greatest amount of work with the least expense, is noted.

It is difficult to see how children could be trained in a better way than this to spell out later the great problems of social life.

In close relation to these topics stands that of local commerce, roads, and bridges. The chief wagon roads by which the farmers, gardeners, dairymen, quarrymen, wood-cutters, and fruit-growers bring their produce to market are pointed out, and are also worked into those local maps which have been described. The farmers and others, with the profits gained by the sale of their products, buy such things as they need in the stores. The idea of the town as a trade centre for receiving raw products from the surrounding country, and, in return, for distributing clothing, groceries, machines, and other things to the farmers, is understood. The railroad lines to the neighboring towns, the freight houses, the elevators, and other places of shipment, with the products they send out and receive, will still further enlarge the children's idea of a town as a trade centre. If the town in which the children live is a county seat it becomes, at the same time, a centre of government and trade. Most

children in the rural districts and villages all over the country are familiar with the county seat or county town, where people congregate for various causes, and it would be advisable in these places to give a few lessons to the study of such a place.

If the town lies upon a navigable river or canal, some attention should be given the trade by water, explaining boats and their cargoes and modes of propulsion. It is quite evident that in discussing local commerce in concrete forms children may get a clear notion which will be a means of quick interpretation of many later geographical topics.

The geography material treated in home geography falls into a few large, distinct topics, and these again into smaller units, each capable of a connected treatment. In every topic which is handled with children there should be a simple sequence of connected ideas. This is true even of the excursions which are made to the open country, to the woods, to a shop or factory. The purpose of the excursion, and of the school lessons which follow it, centres in a single idea. It may be to trace the course of a brook and see what service it supplies for drainage in time of floods, for water supply, and for beauty of scenery. A shoe factory reveals the process by which raw material is worked up into shoes and prepared for the market. A fruit store is a centre into which fruits are brought from all parts of the world and sold out to consumers. Most of these topics contain each a natural unit of thought, based upon the actual surroundings and conditions of life. The dairyman, for example, has the process of butter-making, and is dependent upon the farms for the supply of milk and upon shippers and consumers for the disposal

of his product. Everything is causally conditioned, and the child can see the reasons and trace this line of causes through an industry. This means, of course, that the teacher must have first solved the riddle, that is, the problem which each tradesman is compelled to work out. This demands of the teacher a sharp observation and an ability to trace causes and effects; in short, a clear and comprehensive analysis beforehand of the materials. Children can also acquire this close connection of thought and the power to express themselves coherently in longer sequences. The fragmentary and conglomerate character of much geography study is a point of criticism. Children can fully appreciate connected thinking if they are put on the right sequences with familiar objects as a basis of thought. For example, to trace the coal from the chambers in the mine to the factory or schoolhouse where it is used is entirely within the grasp of children; or to follow the pine tree in northern Wisconsin to its use as lumber in a house in our town; or bananas from a plantation in Jamaica to a grocery in a suburb of Chicago. Moreover, these are the same sequences that real life, in its necessary adaptations to surrounding conditions, imposes. Such a sequence, clearly traced out and understood, is a sure basis of a connected, independent narrative on the part of the pupil. Trace these topics out also on the map. Along the line of these important sequences most of the children's own observations may be ranged, and thus they may be saved from that loose, incoherent collection of facts and experiences in which oral discussions are apt to run to waste.

As already stated (p. 20), the topics treated in the home geography are large units of instruction, each worked out

in a connected series of points. At the same time, by means of pictures and illustrations, these topics are rendered concrete and interesting. But the text, the pictures, and the detailed descriptions are designed to work out together this series of ideas in a single unit of thought. The review questions also and suggestions for teachers are intended to collect other concrete knowledge gained by the children around the central topics of instruction. The excursions into the home neighborhood of which we have spoken will serve to concentrate a still greater amount of experience and observation upon the central topics treated in the book. It can be easily seen, for example, that the excursions to shops, factories, and stores, together with the study of the home town as the centre of trade, contributes directly to the great topic of industry and commerce treated in the book. In like manner the topic on government, necessarily somewhat abstract in its book treatment, will receive from the topics of local town government and county government many concrete details which will give to it added significance.

The large topics on surface features, as soil, hills, valleys, rivers, ponds, and lakes, in the First Book, will receive particular illustration in many ways from the excursions into the home neighborhood. The observation of local weather conditions, winds, storms, temperature and seasonal changes, will add substance and interest to the topics which are treated in the First Book under the subject of air. We may observe also that the excursions for working out the local maps will serve well as an introduction to the book chapter on maps. In these various ways we are able to observe the numerous and important applications of home-bred knowledge to the process

of acquiring primary geographical concepts. In some cases it is well to begin the study of a topic with the treatment in the book, and to insert the local excursions and discussions where they are most needed. In other cases the local observations will be a good introduction to the whole topic. At the close of this chapter we will indicate more in detail how some of the topics in the book can be enriched by particular local observation.

In some respects the incorporation of this local home knowledge into geographical topics is more important even than the logical sequence in the treatment of topics. But it really strengthens the idea of logical order and connection. It is impossible to secure such a close sequence of ideas in topics unless some large, important concept is under consideration, and unless one enters somewhat fully into the concrete details of its treatment. The concept is necessarily comprehensive and abstract in character. The great difficulty in the treatment of all topics in the first year or two of geographical study lies in basing it upon concrete experience, and thus filling up these general notions with meaning. A mere outline of leading points in a subject is almost wholly lacking in interest, and cannot reveal to a child the causal and necessary relations, any more than the mere names of a series of battles indicates the strategic skill of a general. The details with which the topic is filled give not only interesting pictures, special objects, and lively experiences for the children to incorporate into their thought (such as a good excursion or a good magazine article always furnishes), but these detailed facts are the real links of the causal connection in important sequences. If a child has traced the corn from the field to the corn-crib, then through the process

of shelling to the grain elevator, where he sees it loaded into cars and shipped to Chicago, where again it is transferred to lake vessels and shipped eastward, he has a complete series of causally connected facts. These facts will aid him greatly in interpreting the work of the farmer and the grain merchant in all parts of the great corn belt. They will also help him to understand better the shipment of wheat from the wheat regions, and the movement of other products which are sent to the great centres of trade, like Duluth, Minneapolis, Chicago, New Orleans, New York, etc. Such a close causal sequence is found in nearly every topic which is treated in home geography, and this same causal sequence becomes typical in later study of the largest geographical notions or units.

The lessons in the book, being for the most part more general, comprehensive statements, are better adapted to close up and round out the treatment of topics than to serve as a first introduction to them. They are an excellent basis for the teacher's study, showing what topics to treat and how to centre his thought on the main idea and to get a proper sequence of topics and materials. It will take thoughtfulness and skill to bring the work of the local excursions into close relation to the text-book study. At this point the teacher has to deal with several bodies of knowledge: (1) the experience which every child picks up incidentally about home; (2) the local knowledge gained through local excursions; (3) the pictures, descriptions, and explanatory matter contained in the text-book; (4) the general geographical notions which these different materials are designed to illuminate. It may seem to be a heavy task for the teacher to organize all this material fitly, but it is by no means so difficult as to try

to teach geography without such concrete matter. For example, the chapter on ponds and lakes contains general descriptions, backed by pictures and drawings, and further detailed suggestions to teachers. In addition to these it is useful to call up the particular experiences of children with dams, ponds, and lakes, to review any excursions which bear upon these topics, and even to illustrate from the lakes of one's own state the points mentioned in the text. New York State, for example, has many illustrations like Oneida, Cayuga, Ontario, and Chautauqua, which show the inlet and outlet of rivers, also the irregular shore lines, the harbors and cities, and the various uses of lakes for commerce, fishing, drinking water, ice, summer resorts, scenery, and the like.

The teacher should not forget to make use of the larger opportunities for observation and travel which he has had. His reading also will have supplied him with many definite geographical details, and he should strive in every way to use these experiences to give a lively interest to geographical study. A teacher with a good imagination can build up from his reading and studies geographical pictures which are more vivid and expressive than the direct observations of many people. In connection with the discussion of harbors on pages 58 and 59, it may be well to present clearly, by means of a board map, pictures, and verbal description, such places as the harbor of New York, San Francisco, or some other sea port or lake port, familiar by name to the children.

There is still another means by which such topics can be enriched with concrete material, and the work be made very interesting. The large topics treated in the book furnish an excellent basis for the collection of pictures and

for grouping them about significant ideas. Even during the first two years of study this can be done to a considerable extent. From papers, magazines, guide books, and advertisements, from railroad announcements and pictures, it is possible for teacher and children to work together in gathering and sorting material suitable for illustrating the lessons. Old geographies furnish excellent material of this sort. Even after being sorted and arranged, these pictures need to be studied and interpreted, as children are largely lacking in the experience necessary to interpret even good pictures. These need also to be brought into direct relation to the topic studied in the books. Such pictures are well worth preserving in scrapbooks for use in future classes.

In addition to his other accomplishments, it is well for the teacher to use the sand map, and mould the desired forms quickly, while talking and explaining, and perhaps questioning the children. Children also take much pleasure in constructing local and other maps in sand. Sometimes the corner of the schoolroom may be used for this purpose, sometimes the ground on the campus or school yard furnishes, in good weather, the best conditions for map-making.

Before leaving each important topic or division of a topic the pupil should be able to give a connected and relatively complete description of the subject handled, basing it partly upon the book lesson and partly upon knowledge gained from other sources. Until this is done the teacher cannot be sure that the children have clear notions and a real mastery of the subject. Such recitals by the children should not be interrupted by frequent questions and interpolations by the teacher. Full, clear, and self-

reliant expression by the children is the aim to be reached. Frequent questions either interrupt the children or help them with suggestions to such an extent that they do not gain the power of clear and connected narrative. This ability is, however, a result that every good teacher will work for until it is reached. The teacher should be kind and considerate of the children in every way, but this should not interfere with high aims and strong demands for self-reliant effort.

As soon as the children are old enough to write upon topics treated in the book, it is a fine test of their power and of the teacher's success to give them a written test. He must not expect too much at first, as children are not very proficient in the fourth and fifth grades in the written expression of their thought; but it is very useful both to teacher and pupils to apply the written test to the previous oral work and discussion.

The text-book itself forms a good basis for strong work during the study period. It is the practice of our schools generally to supply our children with a good deal of study work at their desks in preparation for their coming lessons, and the teacher must provide for this. But it should be remembered that children of this age should be able to read and understand the text with comparative ease before it is turned over to them for seat study. Our whole discussion heretofore has revealed the variety of concrete experiences which should stand at the beginning of any topic. In the assignment of the lesson for seat study it is well to call these topics to mind, to anticipate any unusual difficulties, by calling up the previous experience of the children, and thus to arouse their interest. In this preliminary work children must first learn how to think

geography before they can put the right kind of interpretation into the descriptions and statements of the book.

THE EARTH AS A WHOLE

The study of the *Earth as a Whole* calls for a very brief treatment for children of this age. Children are naturally interested in thinking of the earth as a great ball and they are capable of understanding a few of the simpler notions of mathematical geography. The topics on local geography concerning the seasons, observations of the sun, moon, and stars, and the changes of day and night are an indispensable basis for this study of the earth whole. The notion of the earth as a globe should be gotten from as large-sized globes as can be secured. In these lessons the appeal to the senses and imagination of the children by means of globes of different sizes to represent the earth, moon, and sun is very helpful. A yarn ball pierced with a knitting-needle, a marble, a football, pasteboard globes, and the best school globes are very useful. The teacher needs to handle these materials very freely to show the relative position and motion of the earth. At the same time the blackboard may be used for the graphic representation of the earth in its position and course. It is well also for the children to use the globes and make the drawings to express their understanding of the subject. Long verbal niceties are to be avoided. The whole subject needs a brief treatment, and its more difficult points should be left for later years.

In fixing the names and location of the different parts of the earth upon the globe, such as zones, continents, oceans, and lesser divisions, the quickest way is that by

oral drills with the whole class. This is an old-fashioned concert drill in naming and pointing out the location of geographical objects. Let the teacher use the pointer and secure lively, spirited work. In a very few lessons the essential things will be learned. This is no suitable place for memorizing a multitude of geographical names and places about which the children know nothing. At the same time this study of the earth as a whole and the fixing of the great geographical features upon the globe give an element of clearness to all later geographical study. The general movement is from the home outward toward the remoter parts of the earth, but children must have a general grasp of the earth whole at first, so that they will not be moving out constantly into a dark or vague unknown.

The study of the earth as a whole should be brought into close relation to the previous experiences of children and especially to the home geography. In conversation they have heard more or less of other countries and of the earth as a big ball. They see the Chinese, the Germans and Italians, and other races on the street, and they can locate on the globe the countries from which they come and the oceans they must cross in order to reach the United States. Many of the common articles of food on our tables, and our clothing or ornaments come from foreign countries. Let them be located with reference to these facts; *e.g.*, tea, coffee, sugar, spices, ostrich feathers, ivory, mahogany wood, statuary, porcelain, tropical fruits, house plants like begonias and palms, cocoanuts, parrots, silks, rugs, and even curiosities they may have seen, or wild animals from different parts of the world. Even the stories the children have read from the "Seven

Little Sisters," the "Arabian Nights," the Bible stories, the voyage of Columbus, the Greek stories and myths, may be used to help in locating far distant countries.

The study of the grocery and fruit store, the china store, and the breakfast table may also lead us to the most distant parts of the earth.

EXCURSIONS AND SUGGESTIONS

Excursion to the Normal School Tower

The excursion with a class of third grade children to the tower of the Northern Illinois Normal School was designed to give a broad survey of the country about De Kalb. The tower is about ninety feet high and gives a good view, five or six miles in all directions, including prairie, woods, creek, the town of De Kalb, farms, fields, etc.

1. Before taking the trip the teacher made a visit to the tower and studied the surrounding country, thinking out a series of topics which would interest and instruct the children as observation material.

2. Just before the children began the trip, fifteen minutes were spent with the class on such questions as the following: At what places in De Kalb can one get a good view of the surrounding town and country? They mentioned a few such places, as the water-tower, the tops of some high buildings, windmills, and steeples. Name some of the objects which you will be able to see from the top of the Normal School tower. What else will you be able to see from this tower? How far can you see? Can you see your homes? How high is the tower? They named several things, creek, railroad, bridges, water-

tower, factories, homes, etc., and pointed, naming directions.

With these preliminary questions and discussions it was thought the children would be more acute and definite in their observations when the opportunity was given.

3. The children, about fifteen in number, climbed five stairways to the top of the tower, when they came out into the open, and quickly began to name and locate objects in one direction after another.

(*a*) In particular toward the south they notice the natural woods, the two bridges across the creek, the shoe factory, the creamery, the fields and farms beyond, and the distant course of the creek.

(*b*) Toward the north are seen the open fields and pastures, ploughed fields, cattle and horses, stacks of straw, corn in the shocks, and in the distance, six miles away, dimly, the water-tower of Sycamore, a neighboring town.

(*c*) To the east, across the creek, lies the town of De Kalb, the stores, nine tall factory chimneys, several church-towers, the water-tower, the gas-tank, and the clusters of houses. They notice also some of the streets and point out their own homes. Beyond the town they can see the farms and fields of the level country.

(*d*) The country to the west is a broad rolling prairie dotted with groves and farmhouses, with big barns and windmills. Stock is seen in the pastures, and the fields are mostly brown with autumn. The little creek or brook that passes through the campus can be seen in its course two miles or more to the west, also the slopes on either side. From these slopes comes the water that fills the brook at the time of the spring floods.

(*e*) The children call attention to the line where the sky and earth seem to meet and call it the horizon. How far away is it? What is its shape on all sides? How big a circle can we see across, with the tower as a centre? Can we see the whole county? The children notice the small size of objects like men or cattle, as we look down upon them.

(*f*) We notice that along the course of the creek to the east for several miles there are natural groves of hardwood trees. Toward the west lies the prairie, with only such groves and orchards as men have planted. Once it was treeless prairie. Toward the east also is the town with its smoking chimneys and crowded houses, toward the west the open country with its fenced fields and scattered farm dwellings, groves, etc. While the children are observing from the tower, they should be called together and asked specific questions about the things seen, so as to give definiteness to their observations; otherwise they will fail to see clearly the important things.

The next day it will be found necessary to have a discussion of the experiences gathered upon the excursion. Let the children explain one after another the things observed in the four directions. To give definiteness to these reproductions have a large piece of drawing or wrapping paper laid flat upon the floor, upon which to draw a map with the schoolhouse and campus as the centre. The course of the creek is drawn also upon this, and the location of forests, city, fields, and all objects of interest noted. Let the teacher draw this map before the children, and have them explain the direction and the proper location of creek, bridges, railroad, water-tower, etc.

Let the children also give complete verbal statements of the things seen, with as little questioning as possible, using the five topics as a basis. The map can now be hung up on the wall, and the directions, fixed before in their natural position, still retained in this changed position. Somewhat later it may be well to make a more careful study of the slopes and to form a sand map which illustrates surface features. An excursion outdoors, along the little creek, to get the ups and downs, the hills and slopes, and the level flats near the brook, is advisable, as a preparation for the sand map. This will lead the children to observe more closely the arrangement of slopes and variations in level.

Later still it may be well to show the map of the state of Illinois, including De Kalb County, and thus bring their experiences about the home into relation to the wall map, and then finally to the United States and to the world.

After this preliminary board sketching a map of the town, showing a few chief highways leading out to the country and to neighboring towns, may be made by each pupil, applying a definite scale of an inch or half-inch to the mile.

The location and direction of the neighboring towns and the railroads connecting with them should be shown by sketches made by the teacher on the blackboard.

Any sketching done by the teacher on the board may be required later from the children, so that they may learn to express themselves freely in maps. The sketching of these maps on the board, and the writing of the names of objects or places, may be a profitable exercise in seat work during the study period.

In case the children need a topic for written language, it would be wise to use these topics developed in the excursion as a basis for such written work.

It is advisable to take a similar excursion with these children in June, when the fields show a wholly different aspect and the woods and groves are in leaf.

Excursion to a Nursery

Near the schoolhouse at Normal, Illinois, is a nursery where fruit trees, shade trees, ornamental bushes, and small-fruit plants are cultivated and sold to growers.

In April an excursion is often made with the children to the packing grounds of this nursery. At this season the nurserymen are very busy packing the young trees and plants for shipment to many parts of the country.

The children notice large pine boxes some twelve feet long, and three feet square at the end. Straw is thrown into the bottom of the box, and then the apple trees, two or three years old, are wrapped at the roots with wet moss and packed into the box. When the box is full the whole is drenched with water so as to keep the roots damp during the time of shipment. Wagon-loads of these boxes are driven to the station, where they are freighted to all parts of Illinois and neighboring states.

Sometimes a small consignment of plants or trees is wrapped first in moss, then in straw, and the whole carefully bound with strong cord and shipped thus without boxing.

The straw for packing is obtained from the farms near by; but the fine moss, which holds moisture and keeps the roots damp, is obtained from the swamp lands of Michigan.

In the packing grounds the children see thousands of young trees, apple, pear, peach, cherry, and shade trees, closely packed together with their roots in the dirt, having been collected from the nursery fields and thus "healed in" in readiness for shipping. Evergreen trees, lilacs, rose bushes, hedge plants, and others are also kept in abundance upon the packing grounds.

In late winter another excursion can be made to the long cellar-like houses where the grafting and budding of young fruit trees are carried on. The young seedlings are raised by thousands the preceding summer, and upon the roots of these the choice kinds of fruit are grafted or budded. The process of cutting and wrapping can be learned, and in the trees a year or two older the effects of the budding or grafting can be seen. In this connection children may learn how our domestic fruits have been developed and how varieties are obtained and propagated.

The apple seeds used for raising seedlings are brought often from Europe, where they are obtained from the pulps of apples used in the cider-presses.

A practical lesson is learned upon these excursions as to how to plant and to care for young trees. In connection with arbor day this is the best mode of encouraging the planting and care of trees.

Spring or early fall is also a good time to go through the nursery fields, to observe the cultivation of various fruit and ornamental trees, and to notice how rapid is the growth of young plants.

In the discussion and reproduction of the main facts learned upon these excursions, the value of the nursery to farmers and fruit-growers, as a necessary source from which to obtain young trees and plants of all kinds, is

emphasized. In the prairie and treeless regions of the West and in fruit-growing regions the importance of the nurseries in the last thirty years has been very great.

Children may be led to discriminate in their observations between apple, peach, pear, and cherry trees so that they can recognize them in later observations; also between the kinds of shade trees, as maple, box-elder, elm, oak, cottonwood, etc.

Excursion to a Blacksmith Shop

Before taking children to a blacksmith shop it is well for the teacher, as in most excursions, to visit the shop and study its work.

The children enjoy seeing the blacksmith working at the forge or hammering the red-hot iron upon the anvil. The use of the bellows for increasing the draft and heating the iron arouses their interest. The kind of coal used and where it is obtained should be known. It comes in lumps, but breaks up very fine at the touch of the hammer.

When a horse is brought into the shop to be shod, a pair of shoes of the right size is selected, according to the size of the horse's foot. The blacksmith does not make the shoes and shoe nails as formerly, but they are sent him from the large factory. Yet the iron shoes that come from the factory have no toes nor heels, so necessary in holding the foot firmly on icy or slippery ground. The children see the blacksmith heat the horseshoe to a bright heat, then, on the anvil, they see him turn down and sharpen the heel points and weld on the toe point. After that the shoe is cooled. The blacksmith takes the horse's

foot between his knees and trims the hoof. By questioning the smith we find that the hoof grows constantly, and the whole is renewed once a year. The old hoof needs to be trimmed with a knife, and the new shoe is fastened on firmly by wrought-iron nails which are driven through the edge of the hoof and clinched on the outside. About once in six weeks or two months the shoes need to be taken off, sharpened, and fitted on again. The advantage to the horses is the avoidance of tender feet, greater firmness upon the ground in walking, running, and hauling, and in winter time especially the avoidance of slipping and falling, and perhaps breaking the legs.

The cost of shoeing a horse on all four feet with new shoes may be $1.50. For resetting old shoes, one-half this. But the value to the farmer or teamster of having his horses well shod is much greater than this. The blacksmith is thus seen to be a very important workman for the farmer, the drayman, the liveryman, and for any one using horses.

The tools used by the blacksmith are worthy of some special examination. The long tongs for handling hot iron, the anvil and hammers and wedges, the knives for trimming the hoofs, the peculiar working of the bellows, the pincers for drawing nails, and the files, — each has its peculiar use and fitness. Then the skill and ease with which the workman performs his work should be realized to some extent by the children.

The sources from which the blacksmith gets his tools, horseshoes, nails, anvils, and forge will also show his dependence upon others in the simple system of economies.

Quite a number of the things seen at the blacksmith's

are suitable objects for the children to draw, as the forge, anvil, tools, and even the blacksmith shoeing a horse. It is not uncommon to find the children making an interesting group of drawings on paper or on the blackboard as the result of such a visit to the shop.

In this shop also the iron parts of wagons and buggies are often repaired, the tires of wheels are set and tightened, and springs are fixed. Oftentimes a blacksmith shop and a wagon shop are combined, as the wagon-maker and blacksmith are necessary to each other in the construction or repair of a wagon. The tools and machines necessary for this kind of work form an additional study of interest and value.

In addition to the suggestions made to teachers in connection with leading topics it may be well to illustrate in a few cases how a given home locality may present direct observation lessons preparatory to, or illustrative of, these large topics treated in the First Book.

In the neighborhood of the schoolhouse at De Kalb, Illinois, the topic on soils may be enlarged by experiment and observation as follows: Take the children out upon the campus and into the neighboring fields to notice the depth and quality of soils. If a ditch has been lately dug, notice the depth of the black soil and of the yellow clay. If necessary, use a spade, and first dig a hole upon high ground, noticing depth of soil. Later sink a hole in the low swampy campus near the creek, and see if the soil is different in depth and quality from that on the highest knoll. What reasons may be given for this difference? Notice what plants and trees grow upon the low, damp ground, and what upon the higher

parts. In June or September observe the difference in the growth of corn or small grain upon the higher and in the lower parts of the neighboring field. The swampy places or sloughs have a very rank growth. What is the reason for these differences? In the natural grove on the campus examine the decay of the leaves and twigs and plants under the trees. Notice the difference, if any, between the soil in the woods and that upon the prairie.

In spring, at the time of the floods from melting snows or rains, take some of the muddy water from the creek or brook and let it settle. Where does the creek gather all this sediment? How large an area of land does the brook drain? Trace up the slopes as far as possible. Where there are steep banks by the side of the creek notice the cross-section of soils. Notice in places where the slopes are steep how the water washes out the dirt in little ruts and gullies. Why do the cultivated fields allow the soil to wash out more than pasture lands? How can the washing away of the soils be hindered along sloping fields? Notice how the farmers enrich the fields with fertilizers and sometimes sow grain fields to grass and clover. What reasons may be given for this? Notice the effect of draining the low lands or marshy places by tiles. What is the advantage of this drainage to the soil and crops?

In boring the wells for town water supply twelve hundred feet of strata were passed through. Find out what these strata were and make a sectional view of them upon the blackboard. Twenty miles east of the town the railroad crosses the valley of the Fox River, which has been washed out forty or fifty feet deeper than the

prairie on either side. Make a diagram of this on the board, and show where the rock quarries jut out at the sides of the valley, from which sources the limestone rock for the foundations of houses is obtained.

Observations which can be made by a class near the school at De Kalb in connection with the topics on rivers in the First Book.

The winding course of the river, fringed in places with groves of natural woods, the general direction of the valley, with the slopes on the sides, and the tributary brooks, can be traced by observation. The floods of the Kishwaukee in March, which are caused by the melting snow and rain, break up the ice which has formed during the winter months and send it down the stream in floating masses. This mass of ice sometimes collects above the foot-bridge, and even threatens to sweep away the heavy piles upon which it is built. Water is from five to eight feet deep and from sixty to one hundred feet wide. During the several days of the spring freshet, and for several weeks, in fact, a very large quantity of water passes down this valley. Without the river to drain off this excess of water the fields would remain flooded for long periods.

At the same time the small tributary stream or brook which passes through the campus grounds overflows its banks, and spreads out over the low part of the campus almost like a river, making approach from that direction to the school impossible. It collects much sediment from the corn-fields and other fields which it drains, and when the flood is passed the mud is found covering the sidewalks and slopes. On the other side of the

river, toward the town, small runs and sewers empty into the river, which in this way provides drainage for the town.

During the dry summer and autumn months there is but little running water in the river. Locate the sources of the river in the swampy prairies some miles south of De Kalb. Here the channel has been deepened and straightened by artificial ditching, thus draining the rich prairie swamps and converting them into rich, productive fields.

Trace the course of this small river northward until it unites with other creeks, passes by the city of Belvidere, and joins the Rock River. On the map of Illinois follow the course of the Rock River until it joins the Mississippi, then on the map of the United States trace the Mississippi until it reaches the Gulf of Mexico.

Suggestions in connection with the topic on ponds and lakes, First Book.

Observe the pond on the campus and the slopes from which the water is collected. At other places upon the prairie low swampy ponds have been seen by the children. Call to mind the rank grasses and cattails which are found growing in these ponds. Where they have been drained out, the effects upon the rich soil can be seen. At several points along the Kishwaukee are partial dams, causing the water to collect above. At points where small creeks enter, can be seen the fan of dirt which has been washed down by the tributary brook. Notice the effect of washing and rolling upon the pebbles and stones in the bed of the creek. Ask the children how many of them have seen Lake Michigan. Could

they see across it? The distance across Lake Michigan just above Chicago is about sixty miles, the same as the distance from De Kalb to Chicago, about an hour and a half by rail with the fast trains. What can the children recall about the ships on Lake Michigan and along the Chicago River. Show pictures of the lake steamers and sailing vessels and of the loading at the wharf.

NORTH AMERICA AND OTHER CONTINENTS

1. The value of the full study of North America. Following close upon the heels of home geography comes the study of the United States and of North America. There are good reasons for an enlarged study of our own country early in the geographical course. A much fuller treatment of the chief topics in our own country, preceding any detailed study of foreign countries, is rapidly becoming the order of the day. There are several good reasons why these home studies of our own country should precede all others in geography. In the first place, they are more directly connected with the topics already studied in home geography, and in many respects they are a direct outcome and continuation of those topics. In the second place, they are by hearsay and by frequent mention better known to the children than anything else. The children of New York State, even before beginning geographical study, have heard many times about the Hudson, the Adirondacks, the Great Lakes, New York City, Buffalo, the Alleghany Mountains, the Ohio River, and they are much more interested in these than in many foreign places of which they have never heard. Thirdly, the leading topics of study in the United States, as the

rivers, cities, mountains, lakes, products, industries, etc., illustrate or explain almost exactly many of the same topics which will be studied later in other countries. It seems strange that we should think of studying the mountains, the rivers, the agriculture, mining, and manufacturing of other countries before giving any clear description and understanding of kindred things near by, and known to us as important in our own land. Fourth, a much greater concreteness and fulness of detail are appropriate to these topics descriptive of our own country than to the multitude of topics in foreign lands. It is very desirable that such topics as are treated in the early years should be full of relishable, meaty subject-matter. This can be secured easily in topics like those of the Second Book, as the Mississippi River, the Rocky Mountains, the Great Lakes, and the people and industries of our own country.

We must make our choice, then, between a full, rich, and instructive discussion of a few leading American topics in early years, and a lean, shallow, uninteresting summary of many topics selected from the whole geography of the earth. There can be little doubt which of these plans is more valuable and educative.

Fifth, the history stories connected with North America which are treated in the same grades as the geography, make it especially advantageous to bring the geography and history into closest relation. The stories of Hudson, Champlain, La Salle, De Soto, Lewis and Clark, and others cannot be understood without the geography of North America. On the other hand, the history stories lend a peculiar attractiveness to many localities in our American geography.

Our American schools are beginning to make much use of early American history stories in the middle grades. Nearly every important part of North America, its rivers, mountains, plains, and coast lines, is touched in an interesting way by these stories of early adventure and discovery. What a waste for children to be studying the geography of Turkey and Russia, of the Nile Valley and of Siberia, when in their history lessons, in the same grade, they are with the French explorers along the Great Lakes, or with De Soto and La Salle upon the lower Mississippi, or with Lewis and Clark in their voyage up the Missouri and across the Rocky Mountains, or with George Rogers Clark descending the Ohio River, or with Hudson and John Smith and Miles Standish along the eastern coast!

Such a brief general survey of the world whole as is necessary for children of these grades has been amply provided for in the lessons following the home geography in the First Book.

Sixth, North America is extremely rich in the variety, attractiveness, and importance of its geographical features. The Mississippi River furnishes the best illustration in the world of a great navigable river, draining the largest and richest alluvial plain in the temperate zone. The St. Lawrence is still more remarkable for its system of Great Lakes and for Niagara Falls. The Colorado is more remarkable than either of them because of its Grand Cañon. The mountains of North America are of every variety, abounding in impressive scenery and in mineral resources and wealth of forests. The variety of climate in this country is of every type from that of Florida and southern California to that of Labrador and the Klondike. The agricultural and mineral resources of the country and

the occupations of the people, based upon these, illustrate all the chief phases of human activity on a grand scale. It has even its desert plateaus and salt lakes, its volcanoes and lava beds, its frozen rivers of the north and tropical fruits of the south, its Yosemite Valley and Yellowstone Park, its Mammoth Cave and Great Dismal Swamp and Everglades.

A child who has gained a clear knowledge of the leading geographical ideas illustrated by the geography of North America has acquired a substantial and adequate basis for all his future geographical information, whether gained in school or in life.

Seventh, from the pedagogical standpoint, there are two significant reasons why this clear and full knowledge of our own country should be gained early in the course. First, it constitutes that body of apperceptive ideas by the use of which children can the more easily and quickly master and appropriate the geography of other countries. It is the capital with which a child quickly develops the geographical resources of other countries. This is an idea whose growing importance is being more and more understood by teachers. Secondly, the geographical objects with which the children are made familiar in North America become the commonly used and fixed standards upon which all other foreign objects are measured and their size or value determined. Just as a child who has clear notions of what is meant by a foot, a yard, a gallon, a barrel, a pound, a ton, a square mile, a hundred miles, a dollar, a thousand dollars, a peck, a bushel, etc., can easily measure all objects upon these standards; so a child who has acquired a definite knowledge of the Hudson River, of Mt. Washington, of Lake

Erie, of Washington, District of Columbia, of Salt Lake, of a gold mine, of oyster fisheries, of a cattle ranch, of Niagara Falls, of Chicago as a trade centre, etc., can constantly fall back upon these familiar standards, and by comparison determine the size, quality, or value of new objects in other lands.

2. It is a striking feature of the Tarr and McMurry geographies that they pick out a few important topics for elaborate treatment, instead of giving a brief and superficial survey of many topics. This concentration of study upon a few important units leads to a fulness and thoroughness of instruction which makes the study in all respects more valuable. There is such an endless variety of topics in geography that some sort of selection is imperative. In making this selection the teacher must weigh the relative worth of facts and pick out those which have a commanding influence ; for example, the St. Lawrence River in Canada, lumbering in New England, coal and iron in Pennsylvania, and the Erie Canal in New York. The Great Lakes have a dominating influence upon the climate and commerce of the richest part of Central North America. Such a large topic as this, studied in its important influence and relations, is, in reality, a key which unlocks one great door of knowledge.

Such a topic also admits of a logical sequence and organization of facts which calls for good thought work both in teacher and pupils. It is in marked contrast to a fragmentary and superficial accumulation of geographical facts without any strong unifying thread. This subject, the Great Lakes, makes it necessary for the teacher to think out a connected series of important topics dealing with

the physical features, the climatic conditions, the navigable waters in commerce, the falls, rapids, and canals, the series of lake and river ports with reason for their location, the products shipped back and forth over this trade route, and the sources from which they are drawn. This exercise in logical thinking in the organization of complex material into connected series not only teaches the main geographical facts, but explains their meaning and relative importance.

3. In many cases the central thread which binds together this large body of varied material is the idea of cause and effect. One topic leads of necessity into another, and so on to a third and fourth, through a whole series. Such a causal idea brings together, into one central topic, a body of closely connected facts drawn from several sources, — physical, commercial, historical, and industrial. Nearly every important geographical unit, when properly organized, is just such a combination of diverse elements held together by strong causal relations. It is wholly artificial and unnatural to isolate these various parts of a complex subject from one another and to treat them separately. Isolation, for example, of the physical facts of the St. Lawrence system from the commercial, industrial, and political geography, gives the facts without cause or relation, and out of their proper setting and meaning.

The virtue of the causal idea lies in the child's perceiving that the physical conditions produced, for example, by the Great Lakes and the St. Lawrence River together with the other physical facts of this region, have directly influenced men in their industries, such as lumbering, mining, fishing, commerce, etc., also in the location of their cities, and in determining the trade routes which are so very im-

portant to all the inhabitants of this region. It will not do, therefore, to treat the cities and trade routes as distinct topics, and the lakes, forests, and surface features likewise as isolated topics, without much reference to the intimate and organic interdependence among them.

The political divisions into states and nations form larger complex units of study. In the treatment of geography these states and national units have played an important part. They have been so much used in maps and descriptions of countries that they have become the most convenient means for designating certain areas. When we speak of California or Texas or Maine, of Spain or Italy or British India, we designate certain political and territorial units more clearly than in any other way. The universal usage of books and of educated people has fixed these divisions in our language and in our thought, and we may ask ourselves what reasons can be assigned for their continued use as the titles of important geographical topics.

First, as political units they are important, and when synonymous with nationality they have characteristic marks which give them importance and distinguish them from all others. France, Spain, Italy, and England are not only separate political units, but there is in each also a unity of life in commerce, language, custom, history, and literature; and, to a large extent, there is even a distinct physiography. Paris, as the capital of France, is the centre of the national life, not only in government, but also in commerce, manufacturing, education, literature, and fashion. In a similar way London and Berlin, Constantinople and Moscow, are great centres of national life. In short, a nation is a large complex unit, and the series of nationalities, such

as England, the United States, Russia, China, etc., must always constitute a most important series of geographical topics.

It is necessary, therefore, to treat these nationalities or political units, in many cases, as separate topics, since they form convenient centres around which to collect and group a variety of lesser topics.

Berlin, for instance, the political capital of Germany, has become also the commercial and railroad centre of the empire. The military system of Germany, so significant in the politics of Europe, is best explained as centring in Berlin. Education also has here its administrative head, and the great University of Berlin is the nucleus of the whole school system. The art treasures of Germany, also, find in the museums and galleries at the capital their most important collections and schools of training.

This prominence of political units is noticeable at the beginning, at the end, and throughout the course of geographical study. In the earliest survey of North America as a whole, we call the attention, among other things, to the three chief political divisions, British America, United States, and Mexico; and the same plan will be followed in the study of Europe and other continents. Again, in completing the study of any country, we combine a multitude of minor topics into one large complex unit like France or Turkey. The reason for this is the fact that our geographical topics are, to a large extent, social units, rather than physical or scientific units. A nationality like England or Switzerland grasps into one thought a great variety of closely related elements, or rather it is a cross-section of all the important elements.

Geography is a complex study, and not a series of scientific units drawn from physiography, meteorology, geology, astronomy, and biology. There has been a strong tendency to treat geography from the standpoint of these distinct sciences; but the important geographical units are those which combine all of these, more or less, into a single topic of causally connected parts.

The physiographic topics, like physical structure, geological strata and changes, river action, etc., are in much danger of standing out in isolation from those industrial, political, and social phenomena which form an important constituent of most geographic topics. It is claimed, of course, that physiography explains so many things broadly, on the basis of cause and effect, that its topics must be treated first and in full. But it is a pedagogical error to explain so many things in a general, more or less abstract form, before the children have come in contact with the facts which need explaining. The adult and scientific mind sees in these great physical causes the explanation of a multitude of minor facts, and is greatly interested in such a broad survey of causal influences. But the child has no such interest because he is incapable of such broad generalizations and inferences. In short, it is the imposition of the adult standpoint upon the child.

It seems advisable to begin the study of any important region or country by a brief survey of physical and climatic conditions. But the important thing, after all, is to bring these physical causes into close relation to the special topics at the time when they are treated in full. For example, when we are discussing the fruit-raising of Florida and California, we should enter definitely and fully into the physical surroundings and climatic conditions favorable to

fruit-growing. The effort to explain all these things by anticipation, when dealing with the physiographic features of North America, would be a mistake. Likewise in explaining the arid regions of the West, it should be done chiefly at the time when irrigation is under full treatment, so that the cause and effect upon human life and industry may be immediately felt.

Even the smaller political units expressed by the names of our states are of much value, sometimes, because they express somewhat distinct physical units, as in the case of California, Florida, Illinois, and Maine; or, when formed into groups like New England or the Gulf States or the Rocky Mountain States, they designate distinct physical divisions of country.

Again, in treating topics like the corn belt, the cotton-growing area, the coal-fields, the forest regions, etc., we have no way of locating these regions except by states. We draw the map of a group of states and locate within them the tobacco-growing districts, etc.

It seems, therefore, that these are important reasons why the political divisions into states and countries should continue to constitute an important series of geographical topics. We may, indeed, drop out a large part of the old minutiæ of political map studies, such as the names and location of the capitals of all the states, the exact boundaries of each separate state, and the drawing of the special maps of each. The time thus saved can be better devoted to topics which extend through several states, or to those topics which are characteristically important in any one state or group.

Nor is it meant by this emphasis of state geography that we shall make a miscellaneous catalogue of products

for each state, to be memorized by the children. For example, in connection with New York State to learn that it produces corn, wheat, grapes, salt, petroleum, lumber, apples, dairy products, oysters, farm machinery, garden truck, iron goods, and a multitude of other manufactured articles.

In planning the study of any large political unit like France, we should consider, not only the physiographic and climatic conditions, but we should select for somewhat elaborate description a few prominent topics which bring out, in a striking way, the pronounced characteristics of the people and country. Paris as a centre of art, fashion, and amusement, the production of wine, the manufacture of silk, give us that small group of topics whose full description will bring out the pronounced characteristics in city and in country life. The architecture, style, and gayety of the French capital, and on the other hand, the vineyards, peasant life, and sunny fields of the open country, are pictured.

In Germany a quite different series of characteristic topics would be selected. The German army and military system, with the emperor at its head, the opera, popular concerts, and beer-gardens, the Rhine River, the beet-sugar industry, and the great iron manufactures on the lower Rhine may serve as central topics.

A few characteristic topics in each country, fully described, give a more distinct notion of the nation as a whole than a catalogue of products, industries, etc., such as has been customary in our geographies.

In the real world, outside of school books, we find every great geographical topic springing out of complex conditions. To be understood, it must be studied in its causes

and relations to man and to nature. The effort to unravel the causal idea hidden in these facts brings out the central influences that are at work in physical geography, in commerce, and in history. The outcome is a causal series of mutually dependent facts as illustrated above.

The effort to trace out causes and effects is a source of strong interest and of close thinking. It goes far deeper into the interpretation of phenomena than the mere learning of facts. Especially for the three upper grades, the sixth, seventh, and eighth, is the study of causal ideas and causal connections a fine stimulus to mental activity. Geography furnishes two sets of causal forces, one springing from physical nature and the other from man and his enterprise. It is quite evident that, by linking together and interpreting facts on the basis of cause and effect, a much better understanding is gained of the great forces at work in the world.

4. In connection with the causal idea it is easy to set up problems for solution which give us the best forms of mental discipline. In any important topic, when certain facts have been presented, interesting questions or problems can be set up which require the pupil to combine and interpret facts. This is especially true of all the great human industries, such as mining, manufacturing, and agriculture. We have as distinctly marked problems in geographical study as in arithmetic. For example : Explain fully why Pittsburg is an important centre for the iron industries. Again : In shipping grain, meat, and heavy products from Chicago to Europe, what is the best way of getting around Niagara Falls ? What is the best railroad route between New York and San Francisco, and why ? Which is the best water route from Lake Erie to the

Atlantic, the Welland Canal, Lake Ontario, and the St. Lawrence River, or the Erie Canal and the Hudson River? What are the advantages and disadvantages of establishing cotton factories at Atlanta and Augusta, in the South, as compared with those at Lowell and Fall River in Massachusetts? How is it possible to get irrigating water from rivers up to the level of dry lands which lie considerably above the surface of the rivers? Why has the Colorado River deeper and longer cañons than any other great river in North America? How can the water in small rivers be deepened and made navigable for small steamboats and canal-boats? Geography, in all sorts of topics, bristles with such interesting questions. The teacher may state these problems with sufficient explanation of the conditions involved, so that the children may think out important results and conclusions. To answer these and similar questions the student must gather the facts together and organize them, compare and balance different sets of facts, and draw important inferences. The student who gets into the habit of working out such problems is acquiring a certain independence and self-reliance in thinking. Moreover, the data for his thinking consist of the undisputed facts, the realities of life, as shown in industrial, commercial, and political affairs. There is a very broad distinction in geographical study between memorizing facts and locations on the one side, and the working out of problems on the basis of cause and effect on the other. Not only is this a source of stronger interest and better thinking, but it binds the ideas together more firmly in the memory, and makes such knowledge more serviceable in interpreting the world about us.

A superficial observation of children might suggest that

they are chiefly interested in facts, and not in deeper-lying causes, but in the last four grades, the fifth, sixth, seventh, and eighth, if not sooner, they are naturally inquisitive about the reason and cause of things. Unless their schooling has been very poor, they like to probe into these questions, and for the skilful teacher here lies the spur to a true interest and to a strong effort on their part. In the lumber business it is a source of interest to see how the logs are gotten out of the woods and brought to the river banks in winter, how the skidding roads are skilfully laid out for this purpose, why the rivers, in springtime, are specially useful, where the sawmills are located and why, and how the lumber is distributed to the prairie regions. At every step in the movement we meet the same problems which the lumberman is compelled to meet and solve. This kind of work commands the unbounded confidence of children, because it is so real and tangible, so true to the conditions of life.

There are many varieties of geographical topics admitting of this problem-solving study. In the raising of beet roots for sugar we pass from the farm to the factory and refinery, thence to commerce and distribution over great traffic routes. The same with all other staple agricultural products in various parts of the world. The study of iron mines and the production of raw ore, the shipment of ore to the centres of iron manufacture, its treatment in blast furnaces, mills, and factories of all sorts, and the distribution of iron machines and products by commerce, — all these likewise show the operation of causes, and the forethought and ingenuity of men in meeting and solving difficult problems. The coal-mines, silver-mines, and other metal-producing mines furnish similar problems.

The full study of any important topic in geography penetrates into the deeper and more important connections, not only of geographical facts, but of many facts belonging to other studies which are wrapped up with these. For example, in the discussion of the iron industries, the sources from which iron and coal and lime are obtained touch on geology and mineralogy. The process of smelting, a very interesting study, deals with chemistry and the effects of heat. Likewise the processes of producing steel and wrought iron. Again, the manufacture of iron goods, such as wire, steam-engines, agricultural implements, bridges, etc., deals with interesting inventions touching on history, physics, and chemistry, and various phases of geography. This naturally brings up the great problem of correlation or interconnection of studies. The only point which we wish to emphasize is that of the presence of strong causal relations, which bind together the different parts of an important topic, and give opportunity for setting up problems in school work which are in fact identical with the problems of business men, manufacturers, shippers, and capitalists in the world of industry and trade.

In any proper treatment of such large geographical topics it is impossible to avoid this apparent mixing up of studies, but the whole difficulty is solved by the teacher who knows how to work out a connected series of points necessary to the logical development of a controlling idea or process. When such a controlling idea is present in the mind of a teacher, all these complex materials are brought easily into coherency and unity.

An example of this connected sequence of topics is the section on Physiography of North America. The general

growth of the North American continent involves a series of topics like the coal period, the mountains, the central plain, the great ice age, and the coast line. In its very nature this is a historical development from one stage to another, the first stage leading to the second, and so on. The causal idea is the controlling one, for example, in the following series. How the coal strata are formed, — the climatic conditions, the vegetation, the rising and sinking of the land with reference to the sea level, the swamps, and matted vegetation. At every step here we find new examples of causes and effects, of conditions and changes, leading to positive results. The study of the ice age of North America is of the same character. In interpreting the history of the great ice sheet, scientists have based their conclusions upon facts and results which can be unmistakably traced to their causes. Problems have been met and solved at every point in the investigation ; for example, how the numerous lakes are formed in Minnesota, how the granite boulders and drifts were spread out over Illinois and other states. In order to teach these topics well, the instructor must take the attitude of the investigator, collect his facts around certain questions, and give the children the chance to draw important inferences for which abundant data are furnished. The same strong thread of logical and causal sequence which furnishes the backbone of good thinking is found in the treatment of the seasons, the winds, the ocean currents, and other topics of physical geography.

When we come to the more definite and limited topics of the different sections of the United States, we find that there is a special strength and value in tracing the operation of causes and in working out the solution of problems.

For example, the subject of forestry in New England follows the same sequence of causal relations which the lumbering industry in Maine presents. The topic on mining in the Middle Atlantic States not only reveals the facts in regard to the location of coal, iron ore, oil, and gas, and the cities where iron manufacturing is carried on, but the whole movement from the crude ore in the mountains to the smelters and manufactories at the centre of iron production (Pittsburg, Birmingham, etc.), the manifold forms of iron manufacture and their distribution, — all these things are traced out in a necessary sequence. We may say, in one sense, that this kind of study is thoroughly practical, not simply because it is a true picture of great industries, giving real insight into the world around us, but because children are thus taught to think and reason, logically obedient to the inflexible requirements of nature and physical and social conditions.

This kind of logical consistency and steady coherency of thought is illustrated by all the important topics treated in the geography of the United States and North America.

5. Of equal importance with the idea of causal sequence, and with the opportunity for problem-setting in following causal relations, is the idea of types in geographical study. These important units of study which we have described as valuable centres around which to collect and organize facts, have a still greater value when looked at from the standpoint of their typical or representative character. If children have obtained a clear understanding of the glacial ice sheet in North America, and of its effects on soils, rivers, and lakes, it is an easy matter, on the basis of this previous study, to explain the similar glacial period in Europe, where like causes have produced like results,

and so in other parts of the world. Again, if the children have studied the great cañon of the Colorado River and the causes of this most striking example of the erosive power of water, tracing back the causes to the location of mountain chains, plateaus, and slopes, to winds and rains on the mountains, and to the dry climatic conditions of the great western plateau; in short, if they have thoroughly understood the causes that have produced the Colorado cañon, it will be very easy and interesting for them to explain the trough of the upper Mississippi, the valley of the Hudson, the gorges of the Rhine and the Danube, the Kongo cañons on the western rim of Africa, and the great gorges of the Brahmaputra and other cañon rivers of the Himalaya.

In connection with the gold mining of Colorado the children have gained a clear understanding of placer mines and of the washing out of gold from the sands, and further of the quartz mining, by sinking shafts in the veins of the rocks, by means of which the miners penetrate deep into the bowels of the earth. They appreciate the difficulties, hardships, uncertainties, and expense of these operations. Later they see how the ore is crushed to powder in the stamp mills, and then shipped in sacks to the great smelters at Pueblo and Denver. There the pure gold and silver and other metals are extracted and separated from one another by heat. The bullion thus produced is shipped to the mints and changed into coin, or is sent to the factories where gold and silver wares are manufactured. If children have traced this great movement from the crude ore to the finest products of our factories and stores, it will be thereafter a very short matter to explain the gold and silver mines of Europe, of South Africa, of

Australia, of South America, and to reach an understanding of their importance in commerce and the industries.

It would not be difficult to multiply illustrations of geographical type-studies in the United States and the rest of North America, which furnish a sure basis for a quick interpretation of all similar topics in other parts of the world. We will merely mention a few of these types to show how valuable and rich is this mode of study. Such types are corn production, and its relation to cattle and meat products, irrigation in the arid regions of the West, cotton raising and cotton manufacturing in the South, the Mississippi River as a navigable stream, cattle-raising on the western plains, fruit-farming in California, Mt. Washington and the White Mountains, the Great Lakes, cod fisheries on the banks of Newfoundland, the oyster fisheries of the Chesapeake, cane sugar in Louisiana and Cuba, the City of Mexico, San Francisco as a seaport, Salt Lake and the Great Basin, Pike's Peak and the Rocky Mountains, the seal fisheries of Alaska, and many others. Every one of these topics is important as a centre of study, around which a large body of facts may be collected and explained, but far beyond this each of these topics considered as a type is a means, in the mind of a child, of interpreting quickly a great many important objects of study in many parts of the world. The knowledge of such representative topics in American geography furnishes the children with a complete outfit for a rapid survey and mastery of the rest of the world. The larger amount of time thus spent on American geography is more than compensated by the depth and richness of knowledge gained about our country, and by the quickness with which foreign topics can be later interpreted by these type-studies.

Each geographical type is in its first treatment very individual and concrete. And this concreteness lends interest and a strong sense of realism to the study. For example, the study of Mt. Washington as a mountain resort, with the inns and villages at its foot, the railroad to the top, the Summit House, and the views along the Presidential range, is full of picturesque and concrete realities. They are such as the traveller experiences on his journeys. The treatment of geographical topics is oftentimes so general and comprehensive that these interesting details are left out, and is therefore weak and powerless to arouse the attention of children.

But wrapped up in these concrete facts are representative or typical ideas which are brought out by the comparison of similar objects. A type-subject is the basis for a series of comparisons, which leads oftentimes to a sweeping general notion which gives comprehensiveness and unity to a large body of more or less scattered facts. It seems strange how little attention has been paid heretofore to the worth of a geographical type. Once understood, it is a means of interpreting quickly scores of similar things elsewhere. We have been so occupied with memorizing bare facts in geography as to forget that the chief purpose and value, lay not in memorizing, but understanding the facts. The intelligence of children is increased by their insight and their power to interpret the meaning of things rather than by the quantity of names they have memorized. If a child understands how an irrigating ditch is constructed along one river valley to enrich arid lands, he possesses thereby an idea which will speedily interpret to him the means by which agriculture is made possible in hundreds of places or along hundreds of streams in the western half

of the United States. The same is true in India, China, in Mexico and South America, and in many other arid regions on the borders of the great Saharas of the world. Such a type which possesses within itself the power of interpreting a multitude of things in many lands is educationally of the highest value. By comparison of similar rivers or similar cities or mountains, the type-idea common to them all springs into view. If we are careful to select the best types, and, after treating each one fully, to make sufficient comparisons to bring out the variations of the type in different countries, we shall acquire a speedy insight into the main lines of geographical knowledge. The original type, worked out in more complete detail than the others, becomes the standard of measurement for a host of similar things in later geographical study. The enlargement, extension, and variation of a typical idea by means of comparisons furnishes the children a good opportunity for associating similar groups of knowledge; that is, for thinking, reasoning, and organizing knowledge.

These comparisons, on the basis of fully developed types, furnish the most instructive form of review. If in the study of the Rhine River, we compare it with the Hudson in point of physiography, scenery, cities, commerce, military importance, and historical associations, the children will be surprised at the number of striking resemblances. For example, both the Rhine and the Hudson have each three canals connecting their waters with other navigable streams. They bring into comparison two of the chief commercial routes of Europe and North America; the fortresses and military history of both rivers are famous. They are about equally noted for the beauty of their scenery. The legendary stories and historical events

along the Rhine are matched by the Indian legends, the Irving stories, and the historical narratives of Henry Hudson and Washington. The differences and contrasts come out also in a striking way in these comparisons. The delta mouth of the Rhine is in strong contrast with the New York harbor and the outlet of the Hudson. The Hudson, though only about a third as long as the Rhine, is deeper and broader and more serviceable for shipping than the Rhine, because it is a drowned valley, into which the tides of the ocean penetrate for many miles. The lofty Alps are in contrast to the Adirondacks where the sources of the Hudson lie.

A comparison of the whole Mississippi with the whole St. Lawrence and with the Colorado brings out, with remarkable clearness, three of the diverse types of large rivers: the Mississippi, navigable throughout its length and that of its tributaries, but its mouth obstructed by its delta and wide bars of silt; the St. Lawrence with its series of vast lakes in its upper course, wholly different from the Mississippi, its middle course obstructed by the Falls of Niagara, and its mouth a deep and open estuary of the sea; the Colorado with neither lakes nor delta, almost unnavigable, and with a series of cañons like nothing either along the Mississippi or St. Lawrence. Such comparisons bring out with remarkable distinctness the singularities, as well as the common features of great rivers. This review by comparison of old topics with new is vigorous and stimulating to thought. It throws new light upon old facts and interprets swiftly new things. It groups and consolidates geographical materials along essential lines.

The question naturally arises whether such types cover the whole field of geographical study, and whether such a

series of studies does not leave a child's knowledge fragmentary and incomplete. In the first place there is great variety of type studies, and there are, as noticed above, several distinct types of rivers. There are tidal rivers, like the Hudson, the Thames, the St. Lawrence, etc. ; there are the delta rivers like the Rhine, the Mississippi, the Ganges, the Nile, and others ; there are cañon rivers like the Colorado, Brahmaputra, and the Kongo ; navigable rivers, like the Mississippi, Yangtse, and Amazon; there are the rivers noted for water-power like the Merrimac, the Upper Mississippi, and the rivers of Maine.

Again, there are various types of cities, as, for example, the commercial centres, Chicago, New York, and Liverpool ; centres for government, like Washington, Berlin, and Rome ; centres for manufactories, like Pittsburg, Manchester, and Lyon. Each of these is typical of the group to which it belongs. So, also, in other geographical topics, mountains, lakes, industries, deserts, trade routes, oceans, winds, continents, etc., through all the list of geographical facts, it is easy to group under the head of various leading types.

And yet it is somewhat difficult to make a selection of leading types which will cover completely that general body of knowledge which belongs to geography. There is some danger that in devoting a large amount of time to the study of a few types many important things will be omitted. Of course, it is impossible to treat all the important cities, rivers, occupations, and regions of country with such fulness as marks the type studies, and it is necessary in some way to make good this deficiency. It is hardly worth while to memorize the names and locations of a dozen or more cities in each of the forty-five

states, and yet it is desirable to name and locate a half-dozen of the chief lake ports, as Duluth, Milwaukee, Chicago, Detroit, Cleveland, Buffalo, and Toronto, and to give the reasons for their importance.

To supplement and complete the work with types we need comprehensive surveys, reviews, and drills. Otherwise the types stand isolated and unrelated to one another, and large bodies of important facts seem to be overlooked. Every important type study, before it reaches completion, should bring within the circle of its discussion the whole body of facts which is typified by it. For example, in treating the sugar beet industry (see Index) in this country or in Germany, we should discuss the agricultural methods employed on a sugar beet farm, the processes of extracting the sugar in the factories and of refining, the shipment of the product to its consumers even in foreign lands, the location and extent of beet sugar production in Germany, France, and other European countries, also in the United States. In Cuba and the Hawaiian Islands, and in the Southern states, the cane sugar production should be compared with that of beet sugar, with respect to its relative importance and methods. The production of maple sugar in the hardwood forests of New England and the Northern states should be compared also with the other forms of sugar production. In this way the whole broad field of sugar production in all parts of the world in its relations to agriculture, manufacturing, and commercial routes can be worked out into a large, connected complex of facts.

As we move forward in geographical studies these great units become more complex and comprehensive. The Mississippi Valley, for example, embraces more than half the

territory of the United States in one of these great units, and it again is capable of being compared with other large river valleys of the world, and the comparison leads up to still broader generalizations. The continent of North America is another still larger unit, still more complex and various than the Mississippi Valley, and capable of being compared likewise with other continents. In fact, all the great geographical topics tend to unify themselves in a few very large types, but something seems still lacking to that thoroughness of knowledge which the good schoolmaster insists upon.

6. To secure this more complete mastery and connection of facts in geography, there is great value in oral drills, both for the class as a whole, and for individuals. Large wall maps are of special use. With such maps, and a pointer in his hand, the teacher can give rapid oral drills upon cities, rivers, countries, peninsulas and bays, mountains and political divisions, in fact, upon all the leading points in geography. Many of these facts range themselves in great series along traffic routes, river courses, or coast lines, or they may be traced along parallel lines of latitude or along great mountain chains. It is an easy matter to arouse strong enthusiasm and a vigorous class spirit in these oral drills.

When new and difficult geographical names are pronounced, first by the teacher, and then in concert by the class and singly by pupils, they are very quickly fastened in the memory. Much more can be accomplished in a short time by vigorous drills in the class than by long periods of seat study. Such drills as these can be thrown in at odd moments almost daily in geographical work, and they give variety and interest to geographical study.

Without such drills it is almost certain that many of the commonest names and facts will not be well mastered. The children may not know how to pronounce the new names, and if they learn them at all at their seat study they are apt to learn them wrong. Children will get much detailed knowledge from special type studies, but they fail to acquire that ready mastery and comprehensive grasp which nothing but drill exercise is likely to give. These drills fill in, to a large extent, the necessary facts lying between the larger types, and give that mastery of geography in its usual setting which makes it practical.

7. In the treatment of the topics worked out in the text-books there are several ways in which the teacher may strengthen and reënforce the text-book lessons. In the assignment of lessons in the book, it is well for the teacher to consider carefully how to open up the subject in such a way that the assignment of the lesson itself becomes something of a revelation of interesting problems and questions dealt with in the book. Merely to assign a number of paragraphs or pages in a book is insipid, but if the teacher calls attention to what they have been studying, and shows how it leads up to the following topics, recalls some familiar experience or knowledge of the children, shows how the lesson will be helped by a proper study of maps, or by examining certain pictures, or by reading some book of reference, a strong stimulus is given to the study of a lesson. With many children the victory is half won. The purpose that underlies all this is not to give excessive help to the children, thus reducing their own self-activity and independent effort, but rather to stimulate to stronger effort, to thoughtful study, to an independent use of books and materials. A great deal

depends upon the teacher's knowing how to assign a lesson properly.

It is generally admitted that there are several important ways by which the knowledge contained in the text-books should be enlarged upon in class discussion. This may be done by the presentation of additional facts by the teacher, by the use of geographical readers, guide-books, and books of travel by the children, and by collecting illustrative pictures, maps, and magazine articles from various sources. Most successful teachers of geography use all these methods of awakening the children to thoughtfulness and independent use of sources. It might seem that the text-books are so full of material on important topics that not much of this sort needs to be added, and certain it is that the text-book lessons should be the nuclei around which this additional material is clustered, and to which it is made contributary. But there is one inevitable deficiency in text-book work which the teacher alone can make good. This deficiency lies in the meagreness of the concrete and illustrative details of each subject. If children wish to know how a canal lock works, how iron is smelted in a blast furnace, how the jetties for deepening the mouth of the Mississippi are constructed, how the water-power of a river is applied to a mill-wheel, how an irrigating ditch is constructed, how gold is gotten out of a mine, and scores of other similar problems, they will not find them explained in text-books. Yet these may be the very meatiest parts of the lesson. Nor can we throw the blame for this defect upon the text-books. It would be impossible for text-books to contain such material. It lies with the teacher and the children to work these things out in the class-room on the basis of the text-book work. This implies, of

course, that the teacher, as well as the children, must have some time for the reading of geographical readers and other reference books.

Among other things the teacher must possess skill in the clear and graphic presentation of these additional facts and illustrations. Simplicity and clearness of statement stand first. The constant use of the blackboard for making diagrams and plans of cities, for drawing canals, machines, and tools, for showing the courses of winds and ocean currents, for exhibiting the processes in the manufacturing industries, for the illustration by blocks and squares of the comparative statistics of products, etc., — the use of all these devices for graphic representation of facts should constitute a good part of the teacher's skill. These things are useful in almost every topic treated in geography. If the teacher has learned how to use them freely and easily, the children also will fall quickly into the same modes of expressing ideas, and will develop the same kind of power. Let the teacher encourage them and require it of them.

This kind of skill and power on the teacher's part may be traced back to definite causes as follows.

(1) The close observation of many common things in his own neighborhood, such as various modes of cultivating plants, the treatment of stock, the devices and processes and machinery employed in manufacturing, in shops and stores, the construction of buildings, plans, materials, and tools, in short the various activities and phenomena in the world of human affairs and in the realm of physical nature about him. There are very few of these things which, if closely viewed and understood, will not be found later of great use in clearing up geographical ideas. No

text-book can furnish this kind of knowledge. It must be gotten at first-hand by each person, in blacksmith shops, gardens, factories, founderies, hothouses, quarries, fields, storms, homes, travels, and various kinds of daily experience.

(2) The teacher must know how to appeal to similar experiences gained by the children by their own observations. It is not probable that any teacher will overdo this matter of concrete illustration of geographical topics by appealing to the children's home experiences. The work of home geography, especially by the variety of excursions in the home neighborhood, is designed to supply an abundance of this varied experience. Both teacher and pupils need to continue these lines of direct observation throughout the years of the school course.

(3) The ready use of sketching and map-drawing by the teacher lends great power. Many topics require local maps drawn to a large scale, such as the harbors of cities, a special river basin or flood plain, the delta of the Mississippi with its jetties, an irrigation stream and canal, the plan of a city or local mining district or lumber camp. It is very important that the teacher be able to sketch such local maps quickly and neatly. In addition to this children should learn to sketch the maps of states or countries, river basins, mountain systems, and continents quickly and correctly as to general proportions, yet without painful accuracy in small details. In two or three minutes a child should be able to put the map of the Ohio Valley or even of the Mississippi Valley on the blackboard, likewise the map of South America or Africa; but no class of children will ever accomplish this unless the teacher gives the example of ready proficiency.

With as little waste of time as may be, children should learn to draw on the board from memory all sorts of maps correct in general outline and proportion. A brief examination and discussion in class of the book map with respect to the general outline and proportions will help greatly in the first attempt to draw any map. If the teacher will sketch it quickly before the children, they will readily grasp the method of execution. It is not necessary that much time be spent in getting results approximately correct. Maps should be regarded as a mode of expressing the children's ideas to which they resort as freely as to the words of language. There are a great many things in geographical study which can be expressed by drawings and sketches better than by language. These various ways of acquiring skill in the presentation of ideas should be steadily cultivated by the teacher. They imply open-minded, progressive intelligence at every step. It is in these things that the inventiveness and originality of the teacher are furnished full scope.

8. Children should learn to study and master their lessons for themselves. There are several ways in which they can be thrown upon their own resources and taught to master difficulties by themselves. The lesson assigned in the book should be strictly required of them. The topics presented by the teacher also, during the recitation, should be called for again from the children; and in both of these cases without much questioning. Children should recite their lessons in continuous discourse, in no way slavishly bound to the language of the book, but with free and connected expression. If the subject falls into important topics, the mere mention of a topic should be enough to bring a full statement from the pupil. Teachers oftentimes weaken and

destroy the best work of the pupils by asking too many questions and by helping the children with little suggestions. The topics which the children have gathered from reference books they should be able to answer for, thus acquiring independence of thought and language. A teacher should never forget that the final worth and outcome of a lesson is what the children get out of it and can express about it. If the children are not held to a rigid account by requiring a full and adequate statement of facts in every lesson, they do not gain power.

In a subject like geography there is danger that the teacher may fall into a habit of much talking and explaining. The subject is interesting and admits of infinite enlargement, and the teacher who is well equipped is probably tempted to pour out of the abundance of his knowledge. But when the teacher has done his duty by clear and simple presentation of a topic, he should keep silence while the pupils give proof of their understanding. Nothing can take the place in good oral lessons of the teacher's own careful and complete statement of the topics. But he should not keep on talking and questioning when the pupil's work begins. To test the real effectiveness of his instruction the teacher may give every week or two a written review or test upon a few topics. This is the most searching of all tests of the pupil's mastery of the subject and of the teacher's method. Defects in spelling and language and in thought which do not appear in oral recitations are made distinct and notable.

9. In all geographies great importance is assigned to review exercises by which the facts are fixed in the mind by repetition. The text-books, indeed, provide usually for a systematic repetition of the same topics two or

three times during the school course. The repetition and enlargement of topics on this plane leads to a better mastery and a more thorough retention of the facts. This plan of review has been worked out completely in the Tarr and McMurry series. The briefer outline of topics for North America and the rest of the world in the First Book is enlarged and worked out to completeness in the later text. A systematic comparison closes the series.

The frequent oral drills emphasized above also conduce to this fluent mastery of important facts, and bring a varied mass of materials under quick and comprehensive survey. A still more valuable principle of review has been fully explained and illustrated under comparisons in type studies, where each new topic is made a basis of review for similar topics previously studied. Such comparisons, for example of the cities of Europe with cities of the United States previously studied, bring out more clearly the significant facts in both the old and the new. A comparison of the areas of the European countries with that of the United States, or of populations, or of mountains or river valleys, is a much more telling method of fixing and emphasizing the facts to be learned, than the method of memorizing or repeating the facts in each case without comparison. These comparisons, as already shown, on the basis of similarity and contrast, bring about a consolidation and grouping of geographical objects into a few large classes which are easily surveyed. This method of comparison makes it necessary for the teacher to know and keep in mind all the subjects which the children have previously studied. But only in this way can the different parts of the child's knowledge, gained from year to year, be consolidated and properly classified.

An examination of the series will reveal a plan of systematic review by comparison. The topics of home geography need to be reviewed and incorporated into similar topics in the treatment of the United States. Many of the subjects discussed in the latter connection are also presented in the study of the world whole, and the recalling of the previous studies as a preparation is of advantage.

In the presentation of topics on Europe and other countries, a reproduction of related subjects in North America is frequently made and the close similarity traced out. This plan brings the geography of all parts of the world into interesting connection with the United States, and with those things most familiar to one's experience and study at home. In this way all geography study becomes, in the end, an interpretation of American occupations, ideas, and physical surroundings, and we end where we began, with home objects and interests. At the same time, all foreign and distant objects are measured and estimated upon these familiar standards of the home, and are thus better understood.

If we add to this method of comparison the idea of constantly illustrating new topics by means of home experiences drawn from the neighborhood, we shall bring all parts of a child's experience of this subject into a closer connection and unity. It is hardly possible to overdo this phase of geographical study. The whole movement, from the home neighborhood outward, making the concrete local experiences the foundation upon which all later structures are built, is a gradual movement toward larger and more complex units. They are similar, however, to those smaller or simpler units which are studied in the home. This movement from the home outward is in con-

trast to the idea of beginning with the world whole, and by successive analyses, of coming down to the smaller parts. We have already suggested that a brief survey of the world whole, with the continents and oceans, should be given in the first year of geographical study ; but the chief movement is synthetic and advances outward from the familiar and simple to that which is more complex and distant or extensive.

The design of this brief world survey is to give to the child a ready bird's-eye view of the whole field of geography. With this in mind he need never feel, in his future study, that he is lost, groping about without chart or compass in unknown regions.

But the great onward movement in geography study is synthetic and constructive, building up step by step a solid structure of real knowledge. It advances steadily outward from the familiar and simple, to that which is more complex and extensive.

The various methods of review, by repetition, by written tests, by oral drills, by comparison, and by constant appeal to the child's own experience and previous knowledge, are the various modes by which a child's gradually expanding knowledge shall be strengthened, consolidated, organized, and made effective in the interpretation of the world.

10. There are certain dangers and faults which need to be guarded against in geographical studies.

(1) The mere memorizing of places and their locations without a study of causes and reasons.

(2) The memorizing of the words of a book without much thoughtfulness as to the value of the things learned.

(3) The abstract rather than the concrete and illustrative treatment of topics.

(4) The lack of close connection and steady coherency of the facts treated in any topic.

(5) The failure to use maps, to make them concrete and real rather than purely formal and symbolic.

On the basis of the topics previously worked out in the geography of North America, we will add a few illustrations of the close connection of American topics with those of Europe and of other countries. These will show the significance of large units, of types, of review by comparison and of causal relations.

Coal and iron in Great Britain and the industries based upon the production of these raw materials.

I. By a reference to the treatment of Great Britain (for pages see Index) we notice that the ability to understand about coal and iron is based upon the previous full treatment of this subject in the United States. The teacher, therefore, who is teaching this should make a careful study of this earlier part of the text. Also that on the Coal Period in the chapter on the Physiography of North America, that found in the summary which deals with coal and iron production in the United States, and finally that found in the chapter on Physiography of Europe.

The facts which have been previously learned about this subject will all be needed by the children before they get through with the discussion of English coal and iron industries, and without them they cannot understand the subject in England. For example, in the treatment of North America a full description is given how coal was formed in the earth, how a mine is planned as a means for securing coal, how the different kinds of coal are obtained, and

how coke ovens are built to prepare coke for the blast furnaces. Then follows the description of a blast furnace and how the pig iron thus produced is used in iron manufacturing. Still further in the discussion of American iron, the iron mines are described, the great docks along the lakes for shipping iron ore, and the central points of manufacture by blast furnaces, etc., explained. None of these topics are treated in detail in the topic on English coal and iron, yet these special features are what give the interesting and instructive facts and ideas for children.

The children have already had the full description of these peculiarities of iron and coal production in the United States, and it would be tedious to go through with a full account of them a second time for England. They simply need to recall the chief facts, and to interpret the great industries of England, of a similar character, on the basis of this previously gained information. This throws the children back upon their own resources and compels them to use their memory and their reasoning powers in interpreting a similar great industry under somewhat new or changed conditions. It may prove necessary for the children studying England to examine for themselves their maps and text-books previously studied in the geography of the United States, and this may be suggested in the assignment of the lesson.

For children to study the coal and iron industries of Great Britain without reference to similar studies in the United States shows a curious blindness in teachers, especially a blindness as to how new knowledge is interpreted.

II. After the principal facts in connection with coal and iron in England have been brought out by study and

class-work, it may be well to institute a definite comparison of the coal areas and coal production in England and in the United States. The coal maps for Great Britain and the United States form a fair basis for such a comparison.

The children will be able from a few questions to see how much more extensive is the coal area in the United States than that of Great Britain. Then compare in regard to population and position the large cities of Great Britain which are centres of coal and iron business with those of the United States. The great series of lake ports, river ports, and sea ports are thus brought into striking relation to the English centres of coal and iron trade. Such comparisons as these open up to children some very interesting and suggestive lines of thought, and, at the same time, incidentally give a fine review of the names, importance, and location of cities.

III. What advantage is it to England to have a large production of coal and iron?

England requires coal and iron for her great manufacturing industries, as well as for ordinary uses of coal for fuel. But England, on account of her extensive shipping with all parts of the world, needs great numbers of vessels (both war and merchant ships), which are now mostly built of iron and propelled by steam. It requires vast quantities of coal to supply the steamships of England, which ply to all parts of the world. England's large coal fields are by the seashore or close to it, as at New Castle and Swansea, Liverpool, etc. The wealth of England depends chiefly upon her manufacturing and commerce, and in both of these coal and iron are of the greatest value. The coal fields of the United States lie mostly inland, yet within easy reach of New York and Philadelphia, and

near to the lake and river ports, Pittsburg, Cleveland, Erie, Chicago, St. Louis, etc.

IV. Why should a small country like Great Britain produce almost as much coal and iron as a large country like the United States? This question may imply a degree of historical knowledge which makes it impossible for the children to answer in any full manner. By question or by direct statement of the teacher it may be well to touch on the following points. Great Britain is a much older state than ours, and it had extensive manufacturing industries long before such industries were established in America. The population of Great Britain is very large as compared with the size of the country, and it has as many people engaged in coal and iron industries as the United States. Much of the United States is only recently settled, and there has not been time yet to develop much manufacturing in the new states. In the last few years the iron and coal production has grown rapidly in the United States. It is likely that these industries in the United States will outgrow those of Great Britain. Does the United States furnish much coal for steamships upon the ocean?

V. In the further study of the coal and iron industries in the other countries of Europe and in other parts of the world, not much will be said except to compare them with Great Britain and the United States in this kind of production. The German Empire stands next to England in these industries, and Austria third among European states.

The less civilized parts of the world have made but little use of coal and have little production of iron and iron manufactures.

VI. This method of studying the coal and iron indus-

tries of Great Britain is mainly a method of review and comparison. It brings out with great clearness the leading facts, both for Great Britain and for the United States, and shows that like results are produced by like causes in very different and widely separated countries. Such comparisons as that instituted above not only review all the important facts in both countries, but by similarity and contrast throw them into a peculiar distinctness. Topics that have been reviewed in this way will hardly need any other form of set review. Indeed, if children and teachers were accustomed to draw their previous knowledge constantly into review by comparison with new topics, taken up in progressive studies, it seems that formal or set reviews for mere repetition would be wholly unnecessary. The whole tendency of such reviews by comparison is to consolidate all a child's ideas on a subject like coal and iron into one connected body of knowledge.

The Mississippi compared with other rivers.

An excursion to the top of the bluffs that border the Mississippi River at Winona, Minnesota, may be used to illustrate the relation of the local topography and commerce to similar topics in the later study of the United States and of foreign countries.

1. The author has made this trip with a class to the summit of the bluffs, six hundred feet above the river. The valley between the bluffs of Wisconsin and Minnesota at this point is about four miles wide, and the bluffs on both sides are forest-covered, except where a steep rocky cliff or limestone stratum stands out in plain view. The bottom lands are partly swampy and forest-covered, partly occupied by open fields and farms.

From the edge of the western bluff, at Winona, one can

look up and down the river many miles, and see the receding line of cliffs, fading into blue, fifteen or twenty miles toward the north, and rising in mountainlike peaks toward the south. The great trough at one's feet is from four to seven miles wide, and six hundred feet below the level of the prairie and woodlands on either side of the river. The narrow course of the stream, like a silver ribbon, can be traced as it winds back and forth across the lowlands.

An occasional steamboat can be seen passing up or down the river, stopping at the levee at Winona to unload and take on goods. It passes under the high bridge that crosses to the Wisconsin side from Winona. More often still the railroad trains are seen at the foot of the bluffs, speeding their way up and down the valley on both sides of the river. It is quite evident, from the number of trains, that the railroads carry by far the greater quantity of goods as compared with the steamboats.

The chimneys and stacks of the big sawmills and planing-mills, with their immense piles of lumber, are seen close by the river, and a rafting steamer may be observed at times, guiding a large log raft down the stream. The logs come from the pineries of Wisconsin.

The city of Winona is built on a long bed of sand, only about ten feet or less above the river at high water. The city extends five or six miles up and down the bank of the river, but only half or three fourths of a mile in width. Wagon roads lead up and down the valley, and also climb through the little valleys to the prairie regions beyond the bluffs, bringing the produce of the farms. One railroad passes westward from Winona, through a winding valley, and after fifteen or twenty miles of steep

grades, reaches the prairie lands six hundred feet above Winona.

On both sides of the river we can see, in the rocky slopes of the bluffs, a strip of limestone in which the quarries for securing building stone are found. One bluff, the Sugar Loaf, is almost effaced by quarries.

For several miles back from the face of the bluffs, the country is hilly and broken, being deeply cut up by the lateral valleys and gulches reaching back from the river, and leading to the uplands. But in many places the level country at the top of the bluffs is covered with grain-fields which are continued away westward for hundreds of miles.

The children may observe all the things we have mentioned, and many more, in the course of one or two excursions to these prominent points of view. The stratified rock appearing at like elevation on opposite sides of the river suggest that the stream in the course of ages has worn out this huge trough, and carried the waste seaward.

2. It will not be specially difficult, on the basis of such observations as those indicated above, to lead the children of Winona on an imaginary trip up the Mississippi to St. Paul and Minneapolis, and down to St. Louis and Cairo, and to give them a tolerably correct idea of the valley for a thousand miles of its upper navigable course. The river throughout this whole distance is lined with bluffs from two to six hundred feet high, and furnishes in summer time a steamboat trip with a great variety of imposing, beautiful views. The large rivers entering through broad deep valleys from either side swell the current of the great stream till it is a mile in width. The prosperous cities along its course are sometimes in the valley close down by

the river, in other cases rising upon the sloping hills and bluffs in commanding position.

The commerce of the river by steamboat, the rafting and lumber business, the trunk railroad lines up and down the valley for nearly the whole distance, can be interpreted and understood by the children from their observations at Winona.

3. We will suppose now, on the basis of these studies and observations, that children have gained a fairly good understanding of this extended valley for a thousand miles.

With a brief description of the Ohio River from Pittsburg to Cairo as a preparation, a short comparison of the Upper Mississippi with the Ohio will bring out striking similarities. The Ohio is also navigable for nearly a thousand miles to Pittsburg. As far as Louisville it is lined with high bluffs that are almost mountainous in its upper course. Steamboats pass up and down this whole distance, and railroads follow the valley on both sides much of the way. It has even larger and a greater number of important cities than the Upper Mississippi. Tributary rivers come down to meet the Ohio through deep valleys. All those points can be readily grasped and understood on the basis of the earlier knowledge of the Mississippi. The contrasts are also worth noticing. The Ohio rises in the mountains, the Mississippi springs from a lake-studded low plateau. The falls, water-power, flour-mills and sawmills at Minneapolis are quite different from the iron-mills and glass factories at Pittsburg.

In a similar way the course of the Missouri may be studied and compared with the Upper Mississippi. The sources of the Missouri in the wonderland of the Rocky Mountains, with deep gorges, mountain lakes, and snowy

peaks, is in strong contrast to the lake and forest region of northern Minnesota. Later still, the broad alluvial flood plain of the Lower Mississippi can be contrasted with the narrower, bluff-lined valley of the Upper Mississippi, and the striking difference in climate, vegetation, people, and cities brought out.

In these three comparisons we see that this first panoramic view of the Upper Mississippi becomes a standard of measurement by which we interpret and judge other parts of this broad basin of the whole Mississippi River.

Later still, when the St. Lawrence is studied in its course through the Great Lakes, and over Niagara Falls, and on to the sea, the contrasts with the Mississippi are remarkable. The upper course of the latter has no lakes of consequence compared with those of the St. Lawrence, which, in its upper course, is lost in fresh-water seas. The cataract of Niagara is like nothing on the Mississippi except the falls at the head of navigation at Minneapolis. The Mississippi in its lower course is full of silt with which to build and extend the great marshy delta. The clear water of the St. Lawrence is without silt, produces no delta, but has instead a deep, broad estuary at its mouth, into which the tides of the ocean pour. The Mississippi is loaded with mud and its mouth is obstructed with delta and broad sand-bars. An explanation of the reasons for this difference will bring out with marked distinctness the character of the two streams.

Children who have lived along the Upper Mississippi may grasp with some vividness the striking difference between the Upper Mississippi and the cañon river of the Colorado. Its walls rise almost ten times as high as the bluffs at Winona, and the valley is much narrower. Show this

contrast by two relief sketches drawn to the same scale on the blackboard. In other points, too, the two rivers are notable for their contrasts in point of navigation, climate, cities and people, scenery and sources.

Again, a comparison of the Upper Mississippi with the Hudson will help greatly to interpret the strong features of that most interesting river.

With the clearly defined ideas of river valleys gained by this comparison of the Mississippi with other American rivers, the children are prepared to examine the rivers of Europe and other continents with sharp appreciation of their meaning and character.

The Rhine and the Danube and the Volga will be discovered repeating the qualities already seen in American rivers. The delta, the commerce, and the scenery of the Rhine will remind them of the Upper Mississippi and the Hudson. The Danube is about the length of the Upper Mississippi from its source to Cairo. Its commerce and cities may be compared in size and importance with those of the Upper Mississippi.

In the still later study of the Yangtse River in China and of the Kongo in Africa, children find that both these rivers are of about the same length as the main stream of the Mississippi from Itasca Lake to the sea. For purposes of navigation the Yangtse is one of the chief rivers of the world, and a comparison of the modes of river boating in China with steamboating on the Mississippi is one of the best ways of showing the contrast of Chinese and American life and modes of travel.

The Kongo, like the Mississippi, drains a rich, thickly populated valley, but its navigation not much above 100 miles from its mouth is obstructed for 250 miles

by rapids and falls, made by the descent of the river down the mountain side of Western Africa. Until twenty-five years ago these difficulties to navigation completely shut out all travellers from Central Africa. Stanley explored this part of the river, and opened up a traffic route to the interior, which led to the establishment of the Kongo Free State.

A comparison of the unobstructed navigation of the Mississippi with that of the Kongo, and of the effects in each case, is very instructive.

We will only suggest a comparison of the Nile and the Amazon with the Mississippi, showing how the greatest valleys of the world agree and differ in climatic condition, productiveness, population, commerce, and development of resources.

This brief study of rivers, showing the movements from the home outward, illustrates, in a simple, practical way, several of the most important ideas in geographical study, as follows: —

(1) A vivid concrete basis in the child's direct experience.

(2) A gradual extension of these home observations so as to grasp clearly a large unit like the Upper Mississippi, and eventually the whole Mississippi Valley.

(3) The standardizing of the Mississippi Valley and its parts so as to make them units of measurement for defining the size and character of other American rivers and later of rivers in other lands.

(4) The emphasis by similarity and contrast of the striking features of important rivers.

(5) The constant review and use of all a child's previous knowledge of rivers in these comparisons.

(6) The classification of all rivers as to their physical and commercial importance into a few large groups or types.

An examination of the subject-matter of Tarr and McMurry geographies will show that they contain the substance of knowledge necessary to these comparative studies. But the success with which this is carried out depends upon the teacher. It is necessary that he should constantly look backward over the field of previous studies with this class of children, and select those rivers (or cities or mountains, etc.) which are of special value as interpreters or as familiar standards of measurement. The instructor in such cases must be more than a mere grade teacher, and must compass in his thought the whole course of geographical studies.

In a similar way other important topics can be traced through the whole series from home geography to North America, Europe, and the rest of the world. For example, a county seat in Indiana may be taken as the starting-point in local geography illustrating a centre for government and trade. Such a series as this might follow : Indianapolis, Chicago, Washington, New York, New Orleans, San Francisco, London, Rome, Constantinople, Berlin, Calcutta, etc.

Again, the fisheries upon some local river may be extended in a series including the lake fisheries, the cod fisheries, the salmon fisheries of the Columbia, the oyster fisheries of the Chesapeake, the seal fisheries of Alaska, etc.

The Philippines.

In the study of the Philippines we have a chance to test the value of comparing far away and unfamiliar things with those well known at home.

For Illinois children, we may ask, How large is the whole of the Philippines as compared with the state of Illinois? By an examination of a map of the world, we can form some sort of estimate, but for an accurate comparison we must examine the tables of areas. The area of the Philippine Islands is given as 114,326 square miles, that of Illinois about 56,650, or about one-half the size of the Philippines. By frequent discussion and map studies the children in Illinois are more familiar with Illinois than with any other large area that could be used as a standard. In comparing the population we find the Philippines with 7,000,000 as against 3,826,000 in Illinois. We conclude that the islands are about as thickly populated as Illinois.

Again, How far are the Philippines from the equator? How far is Illinois? By an examination of a world map, we find that the middle point of the islands, from north to south, is about ten degrees north of the equator, while the centre of Illinois is about forty degrees north of the equator. In other words the Philippines are thirty degrees nearer the equator than central Illinois. How many miles is this? The schoolboys will quickly figure this up as 2080 miles, as based on 69⅓ miles to the degree.

What difference in climate is this difference in latitude likely to bring? What difference in production?

If we should go directly south from central Illinois 2080 miles, what point would we reach lying in the same latitude as the centre of the Philippines? We should locate the spot in the Pacific Ocean just southwest of Nicaragua.

Again, How do the Philippines compare in size with the British Isles? By an examination of the tables we find that the area of the British Isles is 120,000 square miles,

or a little more than the whole of the Philippines, but the population of the British Isles is more than 38,000,000, or more than five times as great as that of the Philippines. How does the latitude of the British Isles compare with that of the Philippines? The parallel of 54 north latitude is found to pass near the centre of the British Isles, showing them to be 44 degrees, or 3050 miles, farther from the equator than the Philippines.

In this case it is not our intention to illustrate the full treatment of the Philippines, but simply to suggest a few fruitful comparisons. In the case just cited such comparisons require careful examination of maps and statistical tables. Children are fully capable of doing this and of drawing conclusions of importance. They also like this kind of investigation, which throws old and familiar facts into a new light, and explains new things by an appeal to well-known standards. The maps and statistical tables should be freely used by the teacher in setting problems for pupils relating to the relative area, location, and population of countries, the length of rivers, the size of cities, and the quantity of various products.

The method of comparison in these various forms is one which depends almost wholly upon the thoughtfulness and ingenuity of the teacher.

There is a large quantity and variety of this map and statistical material in the books. By a proper use of it children can be taught how to work up reference material. Being so largely statistical and exact, it admits of definite comparisons and conclusions. Yet in the usual course of geography these materials play little or no part in the instruction.

In order to get the children to employ these tables and

maps with understanding, the teacher should occasionally spend a recitation period with them, working out the answers to certain questions and problems which require an examination of their contents. Children are not apt to learn this without guidance and instruction. The above lesson was worked over in this way with a seventh grade class, and proved a valuable stimulus to interesting study. For older grades this kind of study furnishes excellent seat work after they have acquired some experience in the method of using the tables. It is also an excellent application of arithmetic.

This is only a continuation of the method of comparative study worked out with such fulness of illustration in the last chapter of the Tarr and McMurry series. In the last two years of geographical work such comparative studies are especially appropriate, because the topics previously treated in North America furnish abundant standards of comparison. The older topics are thus thoroughly reviewed, and the new topics are thrown into a much clearer light by these comparisons.

It should be observed by teachers that this mode of comparing widely separated topics (covering material found in different books of the series) cannot be worked out to any considerable extent in the text-books themselves. There are numerous examples and suggestions of this method scattered through the books, but the books are mainly filled with subject-matter rather than with illustrations of detailed method. It remains, therefore, with the teacher to make such a method of treatment really effective. The children, however, need an introduction to this kind of study. The assignment of lessons preparatory to such studies and comparisons will take considerable

time. This kind of seat study furnishes the children with problems requiring some judgment and independent effort. It is far more valuable, in grammar grades, than the mere memorizing of the text.

THE STATE GEOGRAPHIES

The supplementary volumes called the State Geographies, and those dealing with small groups of states like New England, will be found of great value in working out the general scheme of geographical study. As yet no set of geographies has made a proper use of these state geographies. They have been chiefly a means of appealing to state pride, or a sort of commercial device for pleasing everybody.

In the hands of a good teacher the state geographies and those of small groups of states in the Tarr and McMurry series may prove one of the most important means of putting interest and life into the whole study. There are several reasons for this, as follows: —

1. These state geographies assume that children will be more interested in the important topics of their own state and of the states close at hand than in those far distant. This is in full accord with the idea of proceeding from the home outward, moving gradually into the neighboring districts and states.

Most geographers who have made books have been opposed to or indifferent to this view, saying that when we leave the home neighborhood, it makes little difference how far we leap, as we are dealing, in any case, with things beyond the observation of children.

But the assumption now is that a New England child will be more interested in New England topics, not so

much because they are more interesting in themselves than other topics, but because he has heard much more about them, and they have come closer to his experience in many ways. A New England boy or girl will be more interested in the climate and topography of New England than in that of North America as a whole or of Europe. He will be more interested, for example, to know the causes of the rapid change of New England weather, of which he has experienced much, than of such changes in Colorado or British Columbia. The effects of glacial action in producing the hills, lakes, valleys, drumlins, soils, and harbors of New England will interest him greatly because these things he sees and knows to some extent. Likewise the fisheries, lumbering, dairying, manufacturing, granite quarries, cities, and islands of that region will appeal to him. From childhood he has heard of these things, and of Boston and the White Mountains, of the Connecticut Valley, of the Berkshire Hills, and the Hoosac Tunnel. Knowing something about these things, he is glad to get more definite information. How the lumber is got from the woods in Maine, how milk is brought by train loads to Boston, where the leather and cotton come from for the factories, he will be pleased to know.

2. The state geographies give an opportunity for an elaborate, picturesque, descriptive treatment of topics which, for lack of space, is not possible, to an equal extent, in the general geography. An examination of the supplementary volume on New England, for example, will show that in the pictures, maps, and detailed descriptions there is a richer, more interesting and instructive, treatment of the important New England topics than can be secured in any other way.

This is the kind of treatment of topics which appeals to children more than anything else. It is that thing in which most geographies completely fail. This deficiency is made up by a few teachers in skilful oral instruction, but in most cases, where the instruction is limited to the text-book, it is dull and lifeless.

To put this concrete, interesting, descriptive material early into the school course, soon after finishing the home geography, will give a certain richness and vitality to all later study of geography.

3. We have noticed that in the Tarr and McMurry geographies the treatment of a few large topics as units of instruction is one of the great steps in advance. The striking advantage in this lies, first, in the incorporation of a quantity of concrete description into these topics, and second, the employment of this whole unit as a type of kindred things.

Now the topics treated in the state geographies are of this double character. They are rich in descriptive detail, and they are excellent types of similar topics the world over. They are based also upon the idea of cause and effect, and stand thus fundamentally related to the plan, which is worked out in the whole series. Lumbering, the fisheries, cotton manufacture, leather and shoemaking, the Connecticut Valley, and Boston as a trade centre are such large topics useful for comparison in future study. This kind of study of large topics will put an end to the fragmentary and incoherent memorizing of facts in indiscriminate order.

4. It will be possible, by means of a well-planned series, either of state geographies or of a treatment in small groups of states, to provide an extremely valuable series

of geographical readers or reference books for North America. Geographical readers on the United States have been thus far very rare and meagre, while those on foreign countries have been fuller and more numerous. Teachers and older children in the upper intermediate and grammar grades can make the best use of these supplementary books as reference material with which to enrich the topics of North America.

It is assumed in such case that the supplement on New England would be almost as valuable for the teacher in Michigan or California or Louisiana as for the teacher in Massachusetts. It is at least evident that the way is open in this plan to secure a really rich and instructive treatment of the geography of the United States and of North America, and this cannot be said of any previous series of books.

REFERENCES TO BOOKS, ARTICLES, ETC.[1]

Key to Abbreviations

Publishing Houses. — American Book Co., New York (A. B. C.); D. Appleton & Co., New York (Appleton); The Century Co., New York (Century); Educational Publishing Co., Boston (E. P. C.); The Ginn Co., Boston (Ginn); Harper and Bros., New York (Harper); Longmans, Green & Co., New York (L. G.); The Macmillan Co., New York (McM.); G. P. Putnam's Sons, New York (Putnam); Rand, McNally & Co., Chicago (R. McN.); Chas. Scribner's Sons, New York (Scribner); Silver, Burdett & Co., New York (S. B. C.).

Magazines, etc. — Bulletin American Geographical Society ($1.00 a number, $4.00 a year) New York (*Bull. A. G. S.*); Publications of the Bureau of American Republics, Washington, D.C. (*B. Amer. R.*); Canadian Magazine ($0.25), Toronto, Canada (*C. M.*); Cassier's Magazine ($0.25), New York (*Cass.*); Century Magazine ($0.35), New York (*Cent. Mag.*); Cosmopolitan ($0.10), Irvington, N.Y. (*Cos.*); Chautauquan ($0.25), Meadville, Pa. (*Chaut.*); Harper's Magazine ($0.25), New York (*H. M.*); McClure's ($0.10), New York (*McClure*); National Geographic Magazine ($0.25 a number, $2.00 a year, including membership to society), Washington, D.C. (*N. G. M.*); New England Magazine ($0.35), Boston (*N. E. M.*); Popular Science Monthly ($0.25), New York (*P. S. M.*); Scribner's Magazine ($0.35), New York (*S. M.*).

In referring to magazines the volume is given first, the page last, thus, Vol. 5. p. 69 = 5 : 69.

General. North America. — For references to magazines and journals, see First Book, pp. 256–257. Mill, "Hints to Teachers

[1] These references are not intended to be exhaustive: a few good books are selected, and others omitted because of their cost or for other reasons. In the case of the magazine articles, too, only a few of the many good ones are mentioned.

Concerning the Choice of Geographical Books" (L. G., $1.25); "The Statesman's Year Book" (McM., $3.00); Mill, "The International Geography" (Appleton, $3.50); Herbertson, "Man and His Work" (McM., $0.50); Lyde, "Man and His Markets" (McM., $0.50); Geikie, "The Teaching of Geography" (McM., $0.60); Pratt, "American History Stories" (E. P. C., 4 vols., $0.36 each); Brooks, "Century Book for Young Americans" (Century, $1.50); Rocheleau, "Great American Industries" (C. A. Flanagan, Chicago, 2 vols., $0.50 each); Chase and Clow, "Stories of Industry" (E. P. C., 2 vols., $0.40 each); Coe, "Our American Neighbors" (S. B. C., $0.60); Ballou, "Footprints of Travel" (Ginn, $1.00); Smith, "Our Own Country" (S. B. C., $0.50); Carpenter, "Geographical Reader, North America" (A. B. C., $0.60); Carrol, "Around the World Geography Series," Book II. (The Morse Co., New York, $0.38); King, "Picturesque Geographical Readers" (Lee & Shepard, Boston, Vol. 2, $0.72, Vols. 3, 4, and 5 each $0.56); Ingersoll, "The Book of the Ocean" (Century, $1.50); Lyde, "A Geography of North America" (McM., $0.50); Reclus, "The Earth and Its Inhabitants," Vols. XV, XVI, and XVII, very valuable, but expensive (Appleton, $5.00 each); "Stanford's Compendium of Geography and Travel," North America, Vol. 1, "Canada" by Dawson; Vol. 2, "United States" by Gannett (Scribner, $4.50 each).

Physiography. — Shaler, "Outlines of the Earth's History" (App., $1.75); Shaler, "The Story of Our Continent" (Ginn, $0.75); Shaler, "Aspects of the Earth" (Scrib., $2.50); Davis, "Physical Geography" (Ginn, $1.25); Tarr, "Elementary Physical Geography" (McM., $1.40, contains references to works on physiography); Tarr, "First Book of Physical Geography" (McM., $1.10); Tarr, "Elementary Geology" (McM., $1.40); Russell, "Rivers of North America" (Put., $2.00); Russell, "Lakes of North America" (Ginn, $1.50); Russell, "Glaciers of North America" (Ginn, $1.75); National Geographic Monographs (A. B. C., $2.50).

Animals, Plants, etc. — "The Arid Regions of the United States" (*N. G. M.*, '93, 5 : 167); Wright, "Four-footed Americans" (McM., $1.50); Roosevelt, "Hunting Trips of a Ranchman" (Put., $3.00); Whitney, "On Snowshoes to the Barren Grounds" (Harper, $3.50); Heilprin, "The Geographical and Geological Distribution of Animals" (App., $2.00); Ingersoll, "Wild Neighbors" (McM., $1.50); "How

the Settlement of North America has affected Its Wild Animals" (*Bull. A. G. S.*, '85, 17 : 17); Shaler, "Nature and Man in America" (Scrib., $1.50); Shaler, "Domesticated Animals" (Scrib., $2.50).

The United States. — Gannett, "The Building of a Nation" (The H. T. Thomas Co., New York, $2.50); Baedeker, "The United States" (Scrib., $3.60); Tarr, "Economic Geology of the United States" (McM., $3.50); Channing, "Students' History of the United States" (McM., $1.40); MacCoun, "An Historical Geography of the United States" (Townsend MacCoun, New York, $1.00); Whitney, "The United States" (Little, Brown & Co., Boston, $2.00); Patton, "The Natural Resources of the United States" (App., $3.00); King, "Handbook of the United States" (Moses King Corporation, Buffalo, N.Y., $2.50); "The Growth of the United States" (*N. G. M.*, '98, 9 : 377); "The Conduct of Great Businesses" (*S. M.*, several numbers, Vols. 21 and 22, 1897); "Distribution of Manufactures in the United States" (*Chaut.*, Sept., '98, 27 : 587); "Textile Industries of the United States" (*Chaut.*, March, '99, 28 : 538); "Modern Light House Service" (*Cass.*, Aug. and Sept., '94, 6 : 297 and 355); "The Life Saving Service" (*P. S. M.*, Jan., '94, 44 : 346).

New England. — Davis, "Physical Geography of Southern New England" (A. B. C., $0.20); "American Lumber" (*Chaut.*, Feb., '99, 28 : 436); Thoreau, "The Maine Woods" (Houghton, Mifflin & Co., New York, $1.50); "Fishing Industries of the United States" (*Chaut.*, Jan., '98, 26 : 387); "New England Fisheries" (*N. E. M.*, Apr., '94, 10 : 229); Kipling, "Captains Courageous" Cent., $1.50); "The Granita Industry in New England" (*N. E. M.*, Feb., '92, 5 : 742); "Cotton Manufactures of New England" (*Chaut.*, Apr., '93, 17 : 37); "Cotton Spinning in North and South" (*P. S. M.*, Oct., '90, 37 : 798); "The Manufacture of Wool" (*P. S. M.*, June, July, Aug., '91, 39 : 176, 289, and 454); "Leather Making" (*P. S. M.*, July, '92, 41 : 339); "The Manufacture of Boots and Shoes" (*P. S. M.*, Aug., '92, 41 : 496); "Boston at the Century's End" (*H. M.*, Nov., '99, 99 : 823).

Middle Atlantic States. — Gilbert, "Niagara Falls and Their History" (A. B. C., $0.20); "The Coal Industry" (*Chaut.*, Jan., '93, 16 : 416); Articles on Iron and Steel (*Cass.*, five papers, July to Nov., '93, Vols. 4 and 5; Feb., '00, 17 : 259; *McClure*, June, '94, 3 : 3; *H. M.*, March, '94, 88 : 587); "The Manufacture of Iron" (*P. S. M.*, Dec., '90; Feb. and March, '91, 38 : 145, 449, and 586); "The Manufacture of

Steel" (*P. S. M.*, Oct., Nov., '91, 39 : 729, and 40 : 15); Articles on Ship Building (*Cass.*, July, '92, 2 : 157; Aug., '97, 12 : 341, and 393; March, '98, 13 : 385); "Canning Industry in the United States" (*Chaut.*, Nov., '98, 28 : 126); "The Water Front of New York (*S. M.*, Oct., '99, 26 : 385); "The City of Homes" (*H. M.*, June, '94, 89 : 3); "The New Baltimore" (*H. M.*, Feb., '96, 92 : 331); "Washington Society" (*H. M.*, March and April, '93, 86 : 586 and 674).

Southern States. — Hayes, "The Southern Appalachians" (A. B. C., $0.20); Ralph, "Dixie, or Southern Scenes and Sketches" (Harper, $2.50, published originally in *H. M.*, 1892–95); Brooks, "Cotton, Its Uses, Culture, etc." (Spon and Chamberlain, New York, $3.00); "Culture and Preparation of Cotton in the United States" (*Cos.*, March, '93, 14 : 539); "Sugar in the United States" (*Chaut.*, June, '92, 15 : 290; Oct., '92, 16 : 36); "Rice and Its Culture" (*P. S. M.*, Oct., '90, 37 : 827); "The Old Dominion" (*H. M.*, Dec., '93, 88 : 4); "Subtropical Florida" (*S. M.*, March, '94, 15 : 345); "Texas" (*H. M.*, Sept., '93, 87 : 561); "An Indian Commonwealth" (Indian Territory) (*H. M.*, Nov., '93, 87 : 884).

Central States. — Dryer, "Studies in Indiana Geography" (Inland Pub. Co., Indianapolis, Ind., $0.50); Hovey, "Celebrated American Caverns" (R. Clarke Co., Cincinnati, O., $2.00); "The Mammoth Cave" (*Cent. Mag.*, March, '98, 33 : 643); "The Development of Railroads in the United States" (*Chaut.*, Oct., '94, 20 : 1); "In White Pine Forests" (*Cass.*, Sept., '94, 6 : 408); "Wheat and Its Distribution" (*Cos.*, Nov., '98, 26 : 114); "Beet Sugar Industry in the United States" (Special Report, Department of Agriculture, Washington); "Ranching" (*H. M.*, Feb. and March, '94, 88 : 350 and 515); "The Chicago Packing Industry" (*Cos.*, Oct., '99, 27 : 599); "Copper Mining in the United States" (*Cass.*, Jan., '97, 11 : 215); "Chicago" (*S. M.*, June, '95, 17 : 663).

Western States. — Parkman, "The Oregon Trail" (Little, Brown & Co., Boston, $1.00); "The New Northwest" (*H. M.*, Jan. '98, 96 : 299); Ralph, "Our Great West" (Harper, $2.50, published originally in *H. M.*, 1892–94); "The Pacific Coast Guide Book" (R. McN., $1.00); "The Grand Cañon" (*H. M.*, Aug., '98, 97 : 377); "The Great Walled River" (*Bull. A. G. S.*, '87, 19 : 113); "Gold and Silver Mining" (*Chaut.*, March, '97, 24 : 670); "From Mine to Mint" (*Cass.*, May, '94, 6 : 3); "Lumbering in the Northwest" (*Cos.*, May, '93, 15 : 63);

"The Redwood Forest of the Pacific Coast" (*N. G. M.*, '99, 10 : 145); "The United States Forest Reserves" (*P. S. M.*, Feb., '98, 52 : 456); Newell, "Irrigation on the Great Plains" ('96 Year Book, Department of Agriculture, Washington, p. 197); "The Grape Gatherers" (*Cos.*, Oct., '99, 27 : 612); "Fruit Industry in California" (*P. S. M.*, Dec., '93, 44 : 200).

Dependencies, etc., Alaska. — Scidmore, "Guide Book to Alaska" (App., $1.25); Swineford, "Alaska" (R. McN., $1.00); "Alaska" (*B. Amer. R.*, $0.25); "Geographical Notes in Alaska" (*Bull. A. G. S.*, '96, 28 : 1); "Alaska" (*N. G. M.*, '98, 9 : 105–190, twelve articles); "Mountaineering in Alaska" (*Bull. A. G. S.*, '96, 28 : 217); "An Expedition Through the Yukon District" (*N. G. M.*, '92, 4 : 117); "Life on a Yukon Trail" (*N. G. M.*, '99, 10 : 377 and 457); "The Rescue of the Whalers" (*H. M.*, June, '99, 99 : 3); "The Alaskan Boundary" (*N. G. M.*, '99, 10 : 425).

Cuba and Porto Rico. — See under West Indies.

Hawaiian Islands. — Alexander, "A Brief History of the Hawaiian People" (A. B. C., $1.50); Whitney, "Hawaiian America" (Harper, $2.50); Young, "The Real Hawaii" (Doubleday and McClure Co., New York, $1.50); "Hawaii" (*B. Amer. R.*, $0.25); "Report of the Hawaiian Commission" (State Department, Washington); "The Hawaiian Islands" (*Bull. A. G. S.*, '89, 21 : 149); Wallace, "Island Life" (McM., $1.75); Articles on Samoa (*N. G. M.*, '99, 10 : 207).

Philippines. — Worcester, "The Philippine Islands" (McM., ($4.00); Younghusband, "The Philippines and Round About" (McM., $2.50); "Manila and the Philippines" (*S. M.*, July, '98, 24 : 12); "Life in Manila" (*Cent. Mag.*, Aug., '98, 34 : 563); "Report of the Philippine Commission" (State Department, Washington); Articles on the Philippines (*N. G. M.*, '98, 9 : 257–304; '99, 10 : 33–72; '00, 11 : 1); "The Philippine Islands" (*Bull. A. G. S.*, '83, 15 : 73).

Canada. — Hatton and Harvey, "Newfoundland" (Doyle and Whipple, Boston, $2.50); "The Relation of the United States and Canada" (Senate Reports, No. 1530, Washington); Ralph, "On Canada's Frontier" (Harper, $2.50, published originally in *H. M.*, 1892–95; Parkin, "The Great Dominion" (McM., $1.75); Baedeker, "The Dominion of Canada" (Scrib., $1.50); Canadian Guide Book, (App., $1.00); Statistical Year Book (each year by Department of Agriculture, Ottawa); "Canada, the Land of Water Ways" (*Bull.*

A. G. S., '90, 22 : 351) ; Articles on Lumbering (*C. M.*, Apr., '94, 2 : 549 and 556).

The Far North. — Mrs. Peary, "My Arctic Journal" (Contemporary Publishing Co., New York, $2.00) ; Hayes, "The Land of Desolation" (Harper, $1.75) ; Nansen, "First Crossing of Greenland" (L. G., $1.25) ; "Days in the Arctic" (*H. M.*, Sept. '98, 97 : 499) ; "The Glaciers of Greenland" (*P. S. M.*, Nov. '94, 46 : 1) ; "Greenland and the Greenlanders" (*P. S. M.*, July '90, 37 : 302) ; "The Arctic Highlander" (*S. M.*, Feb., '92, 11 : 241) ; "A Day's Hunting Among the Eskimos" (*P. S. M.*, Feb., '95, 46 : 446) ; Boas, "A Year Among the Eskimo" (*Bull. A. G. S.*, '87, 19 : 383).

Mexico. — "Guide to Mexico" (App., $1.50) ; Baedeker, "The United States" (with an excursion into Mexico), (Scrib., $3.60) ; Bancroft, "Resources and Development of Mexico" (The Bancroft Co., San Francisco, $4.50) ; Romero, "Geographical and Statistical Notes on Mexico" (Put., $2.00) ; Romero, "Coffee and India Rubber Culture in Mexico" (Put., $3.00) ; "An Outpost of Civilization" (*H. M.*, Dec., '93, 88 : 71) ; Griffin, "Mexico of To-day" (Harper, $1.50) ; Lummis, "The Awakening of a Nation" (Harper, $2.50) ; "Mexico" (*B. Amer. R.*, $0.50).

Central America. — Belt, "Naturalist in Nicaragua" (Scribner and Welford, New York, $3.00) ; Calvo, "The Republic of Costa Rica" (R. McN., $2.00) ; Charles, "Honduras" (R. McN., $1.50) ; Handbooks (*B. Amer. R.*) on Costa Rica, Honduras, Salvador, and Nicaragua (each, $0.35, Guatemala, $0.25) ; Monthly Bulletins of the Same Bureau (each, $0.25) also contain information about American Republics ; "Three Gringos in Central America" (*H. M.*, Sept. and Oct., '91, 91 : 490 and 730) ; "India Rubber and Gutta Percha" (*P. S. M.*, March, '97, 50 : 679) ; "Across Nicaragua" (*N. G. M.*, '89, 1 : 315) ; Articles on the Nicaragua Canal (*N. G. M.*, '99, 10 : 297).

West Indies. — Hill, "Cuba and Porto Rico" (Cent., $3.00) ; Rodway, "The West Indies and the Spanish Main" (Put., $1.75) ; Kingsley, "At Last: A Christmas in the West Indies" (McM., $1.25) ; "The Foreign Commerce of Our Possessions," etc. (Treasury Department, Washington) ; Handbooks on Haiti and Santo Domingo (*B. Amer. R.*, $0.35, each) ; "Cuba" (*N. G. M.*, '98, 9 : 193) ; "Porto Rico" (*N. G. M.*, '99, 10 : 93) ; "Haiti the Unknown" (*H. M.*, Aug., '99, 99 : 365) ; "Havana since the Occupation" (*S. M.*, July, '99, 26 :

86); "Aspects of Nature in the West Indies" (*S. M.*, July, '93, 14: 101); "How the Bananas Grow" (*Cos.*, Feb., '98, 24: 365); Heilprin, "The Bermuda Islands" (A. Heilprin, Philadelphia, $3.50).

Government Publications. — Only a very few references are made to the many government publications of geographic interest. There are far too many to refer to. For instance, the Smithsonian Institution Annual Report usually contains articles on geographic subjects, and the Fish Commission has published many excellent accounts of the different fishing industries. From the Weather Bureau are issued not merely weather maps, but Annual Reports and Monthly Weather Reviews.

Among the publications of the Geological Survey are reports upon Irrigation, Annual Reports containing many excellent accounts of the geology of interesting regions, especially mining regions, and also Annual Reports on the Mineral Resources of the country, with statistics. Besides these, the Geological Survey issues topographic maps (five cents each, or two cents by the hundred). A list of these maps can be obtained upon application, and the teacher may find a map of the region where the school is situated.

A great range of topics is covered by the various Annual Reports (called Year Books) and Bulletins of the Department of Agriculture upon such subjects as farming, various crops, forestry, botany, mammals, irrigation, etc. Special reports of importance (some of which are referred to above) are issued by the Treasury Department, which also issues Statistical Abstracts on commerce, finance, population, etc. From the State Department, besides valuable special papers (like the Report of the Philippine Commission), are issued the Consular Reports, which have articles and notes upon foreign industries, etc. A wealth of geographical information is contained in the various Census volumes. Besides these, there are other reports, as that on the Precious Metals, issued annually by the Director of the Mint, the Report of the Bureau of Ethnology, and the Report of the Commissioner on Indian affairs. The maps of the United States Coast Survey will be found of value, especially in those schools located on the coast, which should certainly have the maps of their immediate locality. Many states also issue valuable reports on agriculture, mining, manufacturing, etc.

In order to find out about the government publications, one can

often obtain a list of those issued by a given bureau by writing to the Superintendent of Public Documents, Washington. A monthly list of all government publications is also prepared by the Superintendent of Public Documents, thus permitting one to keep track of new publications. Some of the publications must be purchased, but many may be obtained by writing to one's congressman or senator, to whom copies are given for free distribution among constituents. The great majority of government documents are issued for free distribution. Applications for these, in moderation, are invariably granted when needed for schools, provided the quota is not already exhausted.

General Geography

Earth; Winds and Rain. — Books by Davis and byTarr referred to under "Physiography"; Ward, "Practical Exercises in Elementary Meteorology" (Ginn, $1.12).

Ocean Currents, etc. — Books by Davis and by Tarr (see "Physiography"); Shaler, "Sea and Land" (Scrib., $2.50); Pillsbury, "The Gulf Stream" (U. S. Coast Survey, Washington); Darwin, "Tides" (Houghton, Mifflin & Co., N.Y., $2.00); Guyot, "The Earth and Man" (Scrib., $1.75); "The Depths of the Sea" (*S. M.*, July, '92, 12:77); "How the Sea is Sounded" (*P. S. M.*, Jan., '94, 44:334).

General, for South America, Europe, etc.

Among the many valuable but expensive books of reference mention may be made of Réclus' "The Earth and its Inhabitants" (App., 19 vols., $5.00 each); Stanford's "Compendiums of Geography" (Scrib., 8 vols. at $4.50 and 2 vols. at $8.40); and Baedeker's Guide Books (Scrib.), price variable. The latter may be found in the libraries of friends who have travelled abroad.

There are a number of series for young people which contain good material: for example, Butterworth, "Zigzag Journey Series" (Dana Estes & Co., Boston, 18 vols., $1.50 each); Hale, "Family Flight Series" (Lothrop Publishing Co., Boston, 5 vols., $1.50 each); Champney, "Three Vassar Girls" series (Dana Estes & Co., Boston, 11 vols., $0.75 each).

Every teacher of geography will find Mill's "International Geography" (App., $3.50) and "The Statesman's Year Book" (McM.,

$3.00) of inestimable value. For physiography and climate some help may be gained from Tarr, "First Book of Physical Geography" (McM., $1.10).

South America

There is a *Handbook* for each of the republics, issued by the Bureau of American Republics, Washington, D.C., price from $0.30 to $0.50 each. Ballou, "Equatorial America" (H. M. C., $1.50); Carpenter, Geographical Reader, "South America" (A. B. C., $0.60); Childs, "South American Republics" (H. B., $3.50); Curtis, "Capitals of Spanish America" (H. B., $3.50); Coe, "Our American Neighbors" (S. B. C., $0.60); President Hubbard's Annual Address, "South America" (*N. G. M.*, March, '91, 3 : 1); "Climatic Notes made during a Voyage around South America" (*J. S. G.*, Sept. and Oct., '98, 2 : 241 and 297); "A Winter Voyage through the Straits of Magellan" (*N. G. M.*, May, '97, 8 : 129); "The First Landing on the Antarctic Continent" (*Cent. Mag.*, Jan., '96, 51 : 432); "Magellan and the Pacific" (*H. M.*, Aug., '90, 81 : 357); Bates, "A Naturalist on the River Amazon" (Humboldt Library, New York, $1.00); Andrews, "Brazil, Its Conditions and Prospects" (App., $1.50); Ford, "Tropical America" (Scrib., $2.00); "The Valley of the Amazon and its Development" (*J. S. G.*, Sept., '97, 1 : 193); "The Argentine Capital" (*H. M.*, March, '91, 82 : 491); "Argentine Provincial Sketches" (*H. M.*, Apr., '91, 82 : 781); "The Argentine People," etc. (*H. M.*, May, '91, 82 : 863); "Patagonia" (*N. G. M.*, Nov., '97, 8 : 305); "The Republic of Uruguay" (*H. M.*, May, '91, 82 : 906); "The Republic of Paraguay" (*H. M.*, July, '91, 83 : 222); Rodway, "In the Guiana Wilds" (L. C. Page & Co., Boston, $1.25); Curtis, "Venezuela" (H. B., $1.25); "Venezuela: her government," etc. (*N. G. M.*, Feb., '96, 7 : 49); "Glimpses of Venezuela and Guiana" (*Cent. Mag.*, July, '96, 52 : 358); Whymper, "Travels amongst the Great Andes of the Equator" (Scrib., $2.50); "Across the Andes" (*H. M.*, Sept., '90, 81 : 489); "The Ascent of Illimani" and "Climbing Mount Sorata" (*H. M.*, Oct. and Nov., '99, 99 : 657 and 863); "The Road to Bolivia" (*N. G. M.*, June and July, 1900, 11 : 209 and 264); "A Journey in Ecuador" (*N. G. M.*, July, '96, 7 : 238); Pratt, "Pizarro: Conquest of Peru" (E. P. C., $0.30); "Impressions of Peru" (*H. M.*, Jan., '91, 82 : 253); Smith, "Temperate Chile" (McM., $3.50); "The Climatic Control of

Occupation in Chile" (*J. S. G.*, Dec., '97, 1:289); Articles on Chile (*H. M.*, Oct. and Nov., '90, 81:764 and 901); "A Day in the Falkland Islands" (*J. S. G.*, Feb., '98, 2:49).

Europe

Lyde, "A Geography of Europe" (McM., $0.50); Coe, "Modern Europe" (S. B. C., $0.60); Emerson, "European Glimpses and Glances" (Cassell & Co., New York, $1.00); King, "Northern Europe" (Lee & Shepard, Boston, $0.60); Davis, "The Rulers of the Mediterranean" (H. B. $1.25); "From the Black Forest to the Black Sea" (*H. M.*, Feb. to Aug., '92, Vols. 84 and 85); Lyde, "A Geography of the British Isles" (McM., $0.60); Green, "A Short Geography of the British Islands" (McM., $0.90); Davis, "Our English Cousins" (H. B., $1.25); Pratt, "Stories of England" (E. P. C., $0.40); Geikie, "The Scenery in Scotland" (McM., $3.50); Corbin, "Schoolboy Life in England" (H. B., $1.25); "The Temperature of the British Isles" (*J. S. G.*, Dec., '98, 2 : 361); "The House of Commons," etc. (*H. M.*, Dec., '93, 88 : 34); "A General Election in England" (*H. M.*, Sept., '93, 87 : 489); "London as seen by C. D. Gibson" (*S. M.*, Feb.–June, '97, Vol. 21); "The Geography of Greater London" (*J. S. G.*, Feb., '01, 5 : 41); "The Best-governed City in the World" (*H. M.*, June, '90, 81 : 99); "Notes on the Geography of Scotland" (*J. S. G.*, May, '98, 2 : 161); "From Home to Throne in Belgium" (*H. M.*, Apr. '97, 94 : 722); "Principal Cities of Holland" (*Chaut.*, June, '98, 27 : 227); "Land Wrested from the Sea" (*Chaut.*, Aug., '95, 21 : 597); "The Picturesque Quality of Holland" (*S. M.*, 2 : 160; 5 : 162; 10 : 621); Macdonald, "Paris of the Parisians" (Lippincott, Philadelphia, $1.50); Davis, "About Paris" (H. B., $1.25); "Present Condition of France" (*Chaut.*, Dec., '98, 28 : 280); "Commerce and Manufactures of France" (*Chaut.*, Aug., '97, 25 : 480); "The French Army" (*H. M.*, Apr., '91, 82 : 653); Finck, "Spain and Morocco" (Scrib., $1.25); Stoddard, "Spanish Cities" (Scrib., $1.50); Stephens, "Portugal" (Put., $1.50); Loring, "A Year in Portugal" (Put., $1.50); "Up Gibraltar; to Tangier; into Spain" (*Chaut.*, Aug., '93, 17 : 515); Articles on Spanish Cities (*Cos.*, May–Sept., '96, Vol. 21); Thomas, "Sweden and the Swedes" (Rand, McNally & Co., Chicago, $3.75); Pratt, "Legends of Norseland" (E. P. C., $0.40); "A Glacier Excursion in

Norway" (*Cos.*, Oct., '97, 23 : 625); Stepniak, "The Russian Peasantry" (H. B., $1.25); Stepniak, "Russia under the Tzars" (Scrib., $1.50); Greene, "Army Life in Russia" (Scrib., $1.25); "Baltic Russia" (*H. M.*, July, '90, 81 : 295); "The Czar's People" (*H. M.*, June, '98, 97 : 3); "Awakened Russia" (*H. M.*, May, '98, 96 : 817); "Finland" etc. (*H. M.*, Feb., '91, 82 : 330); "The People of the Reindeer" (Laplanders) (*Cent. Mag.*, Aug., '99, 58 : 582); Pratt, "Stories from Old Germany" (E. P. C., $0.40); "The Government of German Cities" (*Cent. Mag.*, June, '94, 48 : 296); "Some impressions of Berlin" (*Cos.*, Jan., 1900, 28 : 315); "Impressions of Berlin" (*H. M.*, Aug., '90, 81 : 340); "Stuttgart" (*H. M.*, Jan. and Feb., '98, 96 : 269 and 382); "The German Army of To-day" (*H. M.*, May, '92, 84 : 869); "German Universities" (*Chaut.*, Aug., '96, 23 : 560); "The German Royal Family" (*Chaut.*, Sept., '96, 23 : 668); Articles on Germany (*Chaut.*, Oct., '94–Nov., '95, Vols. 20–22); Lubbock, "The Scenery of Switzerland" (McM., $1.50); "A Thousand Miles through the Alps" (*S. M.*, June, '96, 20 : 28); "Venice in Easter" (*H. M.*, Apr. '95, 90 : 738); "Italian Gardens" (*H. M.*, June and Aug., '93, 87 : 165 and 393); "The Corso of Rome" (*S. M.*, Oct., '91, 10 : 399); "St. Peter's" (*Cent. Mag.*, July, '96, 52 : 323); "The Italian Army" (*H. M.*, Aug., '92, 85 : 419); Whitman, "Austria" (Put., $1.50); "Vienna as a Type City" (*J. S. G.*, May, '99, 4 : 175); "The Tyroleans" (*Cos.*, Sept., '98, 25 : 487); "The Banderium of Hungary" (*S. M.*, Mar., '97, 21 : 267); "The Austro-Hungarian Army" (*H. M.*, June, '92, 85 : 50); "Austria" (*J. S. G.*, Dec., '98, 2 : 394); "Wheeling in Tyrolean Valleys" (*Cent. Mag.*, Apr., '97, 53 : 866); "Constantinople" (*S. M.*, Dec., '93–Jan., '94, Vols. 14 and 15); "A Visit to Athens" (*H. M.*, June, 96, 93 : 3); "In the Wake of a War" (Greece) (*H. M.*, Mar., '98, 96 : 548).

Asia

Lyde, "A Geography of Asia" (McM., $0.50); Carpenter, "Asia" (A. B. C., $0.60); Smith, "Life in Asia" (S. B. C., $0.60); "Across Asia on a Bicycle" (*Cent. Mag.*, May–Oct., '94, Vol. 48); Series of articles on Southwest Asia and India (*H. M.*, '90, '93–'95, Vols. 81, 87–91); Mathews, "New Testament Times in Palestine" (McM., $0.75); Douglas, "The Land where Jesus Christ lived" (Thomas

Nelson & Sons, New York, $1.00); Curtis, "Howadji in Syria" (H. B., $1.50); "The Holy Places of Islam" (*H. M.*, Nov., '92, 85: 813); "The Russo-Siberian Plain" (*J. S. G.*, March, '00, 4: 81); "A Winter Journey through Siberia" (*Cent. Mag.*, Sept., '91, 42: 643); Articles on Siberia (*H. M.*, July and Aug., '98, 97: 240 and 327); Lyall, "The Rise of the British Dominion in India" (Scrib., $1.50); Pratt, "Stories of India" (E. P. C., $0.40); Kipling, "The Jungle Books" (Cent., $1.50); "Elephant and Tiger Hunting in India" (*H. M.*, July and Oct., '92, 85: 290 and 706); "An American in Tibet" (*Cent. Mag.*, Nov., '90–March, '91, Vol. 41); "Among the Farthest People" (Tibet) (*Cos.*, Feb., 1900, 28: 443); "Life in the Malay Peninsula" (*Cent. Mag.*, Feb., '93, 45: 577); Colquhoun, "Overland to China" (H. B., $3.00); Colquhoun, "China in Transformation" (H. B., $3.00); "The Crisis in China" (H. B., $1.00); Little, "Through the Yangtse Gorges" (Scrib., $2.50); Ralph, "Alone in China" (H. B., $2.00); Pratt, "Stories of China" (E. P. C., $0.40); "In the City of Canton" (*Cent. Mag.*, Nov., '94, 49: 59); "The Great Wall of China" (*Cent. Mag.*, Jan., '93, 45: 327 and 332); Series of Articles on China (*Cent. Mag.*, Aug.–Oct., '99, Vol. 58); also (*H. M.*, June–Aug., '95, Vol. 91); Griffis, "Corea: The Hermit Nation" (Scrib., $2.50); "Korea and the Koreans" (*N. G. M.*, '90, 2: 231); Norman, "The Real Japan" (Scrib., $1.50); Scidmore, "Jinrikisha Days in Japan" (H. B., $2.00); Bramhall, "Wee Ones of Japan" (H. B., $1.00); Series of Articles on Japan (*H. M.*, '94 and '95, Vols. 89 and 90); also (*S. M.*, Apr.–June, '93, Vol. 13); also (*S. M.*, '90 and '91, Vols. 8 and 9); "Japanese Women" (*H. M.*, Dec., '90, 82: 119); "An American Artist in Japan" (*Cent. Mag.*, Sept., '89, 38: 670).

Africa

Lyde, "A Geography of Africa" (McM., $0.50); Stanley and others, "Africa: Its Partition and Its Future" (Dodd, Mead & Co., New York, $1.25); Badlam, "Views in Africa" (S. B. C., $0.72); Annual Address of President Hubbard, "Africa, Its Past and Future" (*N. G. M.*, '89, 1: 99); "Africa since 1888" (*N. G. M.*, May, '96, 7: 157); Curtis, "Nile Notes of a Howadji" (H. B., $1.50); Edwards, "A Thousand Miles up the Nile" (G. Routledge & Sons, New York, $2.50); Rawlinson, "The Story of Ancient Egypt" (Put., $1.50);

"The Egyptian Sudan and Its History" (*J. S. G.*, Feb., '99, 3 : 41); "In Fascinating Cairo" (*Cent. Mag.*, Oct., '99, 58 : 811); "Climatic Control in the Desert" (*J. S. G.*, Sept. '99, 4 : 255); "A Sahara Caravan" (*S. M.*, March, '93, 13 : 315); "Cairo in 1890" (*H. M.*, Oct., Nov., '91, 83 : 651 and 828); "Peeps into Barbary" (*H. M.*, Aug., '96, 93 : 387); "Tripoli of Barbary" (*S. M.*, Jan., '90, 7 : 37); "An Arab Fête in the Desert" (*Cos.*, Apr., '97, 22 : 665); Bryce, "Impressions of South Africa" (Cent., $3.50); Stanley, "Through South Africa" (Scrib., $1.00); Hillegas, "Oom Paul's People" (App., $1.50); Bigelow, "White Man's Africa" (H. B., $2.50); Younghusband, "South Africa of To-day" (McM., $2.00); "Empire-building in South Africa" (*Cos.*, March, '96, 20 : 472); Drummond, "Tropical Africa" (Scrib., $1.00); Stanley, "My Kalulu" (Scrib., $1.50); Stanley, "My Dark Companions" (Scrib., $2.00); "The Pygmies of the Great African Forest" (*S. M.*, Jan., '91, 9 : 3); "Abyssinia" (*N. G. M.*, March, '01, 12 : 89); "The Gold Coast, Ashanti and Kumassi" (*N. G. M.*, Jan., '97, 8 : 1); "Life among the Congo Savages" (*S. M.*, Feb., '90, 7 : 135).

AUSTRALIA, ETC.

Davitt, "Life and Progress in Australasia" (New Amsterdam Book Co., New York, $2.50); Pratt, "Stories of Australasia." (E. P. C., $0.40); Kellogg, "Australia and the Islands of the Sea" (S. B. C., $0.68); Ballou, "Under the Southern Cross" (H. M. C., $1.50); "The Australian Horseman" (*H. M.*, July, '99, 99 : 257); "Convicts and Bushrangers in Australia" (*Cos.*, May and June, '96, 21 : 91 and 173); "New Zealand" (*H. M.*, Aug., '91, 83 : 327); Chalmers, "Pioneer Life and Work in New Guinea" (F. H. Revell & Co., New York, $1.50); Reeves, "Brown Men and Women" (McM., $3.50); "A Little Journey in Java" (*H. M.*, May, '94, 88 : 918); "Down to Java" (*Cent. Mag.*, Aug., '97, 54 : 527); "The Climate of the Philippine Islands" (*J. S. G.*, Dec., '99, 3 : 361); "The Samoan Islands" (*N. G. M.*, Nov., '00, 11 : 417); "Samoa" (*N. G. M.*, June, '00, 10 : 207).

To avoid fine, this book should be returned on
or before the date last stamped below

50M—9-40

JAN 21 195

McMurry, Charles. 66114
A teacher's manual of geography.

DATE	NAME	DATE
JAN 2 4 1958		

LIBRARY. SCHOOL OF EDUCATION. STANFORD

5M—2-40-

Tx
914.2
T192m
Cop. 1